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ILLUSTRATIONS

OF

EXOTIC ENTOMOLOGY,

CONTAINING

UPWARDS OF SIX HUNDRED AND FIFTY

FIGURES AND DESCRIPTIONS

OF

FOREIGN INSECTS,

INTERSPERSED WITH

REMARKS AND REFLECTIONS ON THEIR NATURE AND PROPERTIES

BY DRU DRURY.

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A NEW EDITION,

BROUGHT DOWN TO THE PRESENT STATE OF THE SCIENCE,
WITH THE SYSTEMATIC CHARACTERS OF EACH SPECIES, SYNONYMS, INDEXES,
AND OTHER ADDITIONAL MATTER.

BY J. O. WESTWOOD, F.L.S.

SOC. CÆS. NAT. CUR. MOSQ. SOC.

ETC. ETC

VOL. II.

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MR. DRURY'S PREFACE

TO THE FIRST EDITION.

VOL. II.

To gratify a laudable curiosity, and lead the mind to the exercise of one of its noblest faculties, was the motive that first encouraged me to publish a work of this kind. How far it has answered these ends, what pleasure it has produced, of what benefit or advantage it has been to mankind, by inducing them to contemplate the admirable works of Providence, and trace its wisdom and goodness through the medium of this branch of the history of nature, are circumstances, the confined sphere of life in which I have hitherto moved, has not given me those opportunities of knowing that I could wish. But the kind reception the first volume of this work has met with, seems to justify the opinion that it has not been written in vain.

In the Preface to my former volume, I told my readers, that my design of giving an addition to that work, would entirely depend on the reception the public should be pleased to give it. I was willing to have some proof of the public approbation, before I ventured rashly to engage further in so considerable an expense as the engraving and colouring the plates, &c. which was too great for me to incur without a prospect of a reimbursement.

It is now with the utmost pleasure I can declare, that I have the greatest reason to be satisfied on that head; the world has generously encouraged my first attempt, and it is to that cause the present volume owes its appearance. The quick sale of a great number of copies, on the first publication, was a proof of the great progress natural history had made; and gave me the utmost hopes a continuation might be equally as acceptable, if conducted on the same plan, and rendered as agreeable by the exertion of the artist's abilities. I have now the satisfaction of offering a volume to the public not inferior to the first.

It is a pleasing reflection to consider the great strides natural history is making in this kingdom, as well as in other parts of the world; and the many publications on the various subjects of nature, that have made their appearance within these last three or four years, is a circumstance that must give every man of a liberal mind the greatest satisfaction. We

see persons, skilled in natural history, receiving encouragements and reward from men of rank and property, according to their respective abilities. Some are encouraged to pursue their studies in foreign parts, and investigate the secrets of nature among the trees and plants; others are employed in discovering countries, and searching the shores of coasts, hitherto unknown, for subjects that will afford either profit or speculative pleasure; while the artist at home is not neglected and abandoned, but meets the reward his merit entitles him to.

Natural history has, certainly, less reason to court the favour of mankind than many other branches of knowlege; as the pursuit of it, either as a science or amusement, is so replete with pleasure, that it is hardly possible to refuse it our approbation and encouragement, so soon as we give ourselves the least time to enquire into its merits; and we are often stimulated to pursue it from the appearance of that inexhaustible store of entertainment it is sure to afford. It is therefore less to be wondered at that publications on these subjects are more numerous than formerly; as the desire of communicating knowledge and happiness is irresistible, and men, for their own sakes, will be induced to follow the tracks, where the enjoyment of unallayed pleasure lies within their grasp.

I shall not dwell any longer on this part of the subject, but inform the reader, that the same plan, of giving *just* and accurate figures, that was followed in the first volume, is continued in this. The utmost care and nicety has been observed, both in the outlines and engraving. Nothing is strained or carried beyond the bounds nature has set; and whoever will compare the engravings with the originals, I flatter myself will allow, that nothing is borrowed from fancy, or any colour given to an insect that does not really exist in the subject intended to be represented.

It is true, the want of those remarks and observations on their natural history, similar to those inserted in my first volume, is a circumstance I have great reason to lament. I mentioned my opinion of the cause in my former address, in which I have since been confirmed by repeated proofs; and notwithstanding the great labour and trouble I have been at, not only in procuring the subjects of the present volume, but in endeavouring also to get the natural history of some of the most extraordinary of them, I have not been able to obtain one single piece of information proper to be laid before the public.

It is to little or no purpose to make further enquiry into the reasons of this want of curiosity, among all ranks of people, situated in distant climates, more than I have already done. I find it is so; and whether it proceeds from an ill-judged pride, in thinking such minute animals below their notice, or whether it arises from that languor of mind, as well as of body, that generally prevails in warm climates, is a matter of no consequence to mankind: the world is not benefited by their situations, and we must be content to remain in our present ignorance, till Providence shall think proper to give us a second Swammerdam, or Reaumur, &c. and place him in a distant part of the globe, for the advantage of the human race.

It is necessary to mention, that both the descriptions, and engravings, were finished about the beginning of the year 1771; and as some of the insects are mentioned as nondescripts, that since that time have appeared in other works, I hope I shall not be considered as guilty of an imposition on that account.

The present age has made great improvements in *entomology*, as well as other parts of natural history. The many publications that have appeared on that subject within these two years, are proofs how well works of this kind are received; and as all iconographers aim at giving representations of unfigured subjects, it is no wonder if some contained in this volume should be presented to the world by those who happened to have got the start of me. The plates were actually engraved, and great part of the prints coloured, before I discovered that any of the subjects had been figured by other authors; and to have suppressed them on account of the very few that are found in other works, would have incurred an expense greater than the nature of the case would allow.

The objection made of the want of *names* to the insects contained in my first volume, the reader will here find removed; and *trivial* as well as *generical* ones, given to every insect in the whole work: and likewise a few errors of the press corrected, that have almost imperceptibly got in. I was, indeed, truly sensible of the defect and incompleteness of that volume, occasioned by the above circumstance, and would gladly have named every insect then delineated; but the different opinions subsisting at that time among entomologists, some preferring one author and some another, made me exceeding cautious of entering on that business: and I rather chose to defer it to the present opportunity, than give occasion for any reflections against me, for my attachment to an author, whose method I should certainly have pursued, and whose works have deservedly entitled him to the appellation of *father* of natural history. I mean the excellent Linneus, whose system seems now to be generally approved and followed; and I must here mention, the opportunity that the present work affords of giving an explanation of the terms, &c. in his work, I should certainly have availed myself of, for the benefit of the young beginner; but as my friend, Mr. Curtis, has published a good translation of the "Fundamenta Entomologiæ" of that author, wherein the young student, as well as the adept, who are not versed in the Latin tongue, may receive great improvement; I must refer them to that work for the properly understanding the plan and design of that great author.

The reader will observe, that in giving *trivial* names I have strictly followed the method of Linneus. The Butterflies entitled to be ranked among the Equites, are named after some great personage found among the Greeks and Trojans; as in Plate iii. Fig. 1. where I have named the insect Antenor, from a Trojan prince; and Plate ix. Fig. 1, 2. Menestheus from a Grecian one; one belonging to the Eq. Trojanes, the other to Eq. Achivi. I have likewise followed his rule in naming the insects belonging to other classes; and given such as I concluded to be the most easily retained in the memory. To this end also I have used the Latin language in preference to the English, for the great liberty it allows

of compounding and decompounding words and names; a circumstance of the greatest consequence in a business of this sort.

I should think myself totally unpardonable, if I finished this address without acknowledging the obligation I am under to several friends, whose assistance in this work claim the utmost return of gratitude; among these, in a most particular manner I must mention Dr. Fothergill, whose readiness to encourage and promote every part of natural history, must endear him to every man who wishes well to so useful and beneficial a branch of knowledge; and it is to the kindness of that gentleman the reader will perceive I am indebted for a great number of figures that form a considerable part of this work; many of which are so very rare, as not to be met with in any other cabinet.

NICOLSON TEST. MUS.

ILLUSTRATIONS

OF

EXOTIC ENTOMOLOGY.

HÆTERA PHILOCTETES.

Plate I. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Swainson.*

GENUS. HÆTERA, *Fabr. (Syst. Gloss. in Illig. Mag.)* Satyrus, *Latr. & God.* Papilio p. *Linn.*

HÆTERA PHILOCTETES. Alis suprà violaceo-fuscis; posticis ad angulum ani maculis tribus cœruleis, externis duabus puncto nigro, punctisque tribus albis, subtus fasciâ latâ communi purpureo-fuscâ utrinque albo-marginatâ. (Expans. Alar. 4 unc. fere.)

SYN. Papilio (Equ. Achiv. Philoctetes), *Linn. Syst. Nat.* 2. 750. *No.* 29. *Cramer, tab.* 20. *fig.* A. B. C. *Fabr. Ent. Syst.* III. 1. *p.* 83. *p.* 259. (Nymphalis Ph.) *Herbst. tab.* 55. *fig.* 2. 3. *Enc. Méth.* ix. *p.* 481. (Satyrus Ph.)

HABITAT: Surinam (*Drury*). "In Indiis." (*Linn.*)

Upper Side. Head, thorax, and abdomen dusky brown. Anterior wings fine mellow dark brown or snuff colour towards the tips; but near the body, glowing with a fine dark glossy purple. Near the tip of each wing are two small white specks, one scarcely visible; on the lower part of each wing is a rather large oval spot, of the same snuff colour with that near the tips. Posterior edges circularly dilated, and gradually widening from the shoulders to the external edges. Posterior wings dark brown, but glowing all over in some directions with a dark glossy blueish purple. Near the abdominal corners are two black eyes on each wing, surrounded by beautiful dazzling blue.

Under Side. Breast and sides yellowish sandy-coloured. Anterior wings divided into three parts by two lines or bars; one being brown and narrow, the other white and rather broad. The first division, next the body, is of a russet or light hair colour, tinctured with pearl, having a short black streak near the middle; the next, or middle division, is light brown; the third is dark clay-coloured. A considerable number of long hairs arising from a single point or stalk, spreading like the leaves of a fan, and occupying the space corresponding with the oval spot mentioned before; those on the outside bending downwards, and curling. (See Fig. 3. This circumstance is peculiar to one sex only.) Posterior wings next the body russet, with a single black spot near the middle of each. Abdominal groove russet.

Middle of the wing with a rather broad bar of a fine deep chocolate colour, beginning at the anterior edge and ending at the abdominal groove; the upper side of the bar next the body being russet. Lower part of the wing, next the external edge, of a colour between russet and chocolate, with three small white spots near the upper corner. The two black eyes are distinct on this side, with narrow blue irides. The wings are a little dentated.

Drury's figure represents an individual in which the posterior wings have no appearance of the short tail, which the species ordinarily exhibits. It may, perhaps, originate in the figure being taken from a mutilated specimen. The Papilio Morna of Fabricius, appears nearly allied to this insect.

THECLA FAUNUS ♀.

Plate I. fig. 4, 5.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Lycænidæ, *Leach.*

GENUS. THECLA, *Fabr.* Polyommatus p. *Latr.* Hesperia p. *Fabr. olim.* Papilio (Pleb. ruric.) *Drury.*

THECLA FAUNUS. Alis supra fuscescenti-violaceis apice atro, subtus albis strigâ communi mediâ fulvâ; posticis tricaudatis, lineâ marginali nigricante maculisque duabus nigro viridique mixtis. (Expans. Alar. 1 unc. 3 lin.)

SYN. ♀ Papilio (Pleb. ruric.) Faunus, *Drury, App. vol.* 2. *Cramer, pl.* 39. B. C. ♂. 96. F. G. ♀. *Fabr. Ent. Syst.* III. 1. *p.* 161. *No.* 11. (Hesperia F.) *Encycl. Méth.* ix. *p.* 618. 1. (Polyommatus F.)

♂ Hesperia R. Hesiodus, *Fabr. Ent. Syst.* III. 1. *p.* 260. 8. *Pal. Bauv. Ins. d'Afr. et d'Amer. Lep. Pl.* 7. *f.* 5. 6. 7. ♂. ♀.

HABITAT: Sierra Leone *(Fabr.)*. Gold Coast *(Drury)*.

Upper Side. Antennæ ringed with white and black. Anterior wings greyish brown, without markings. Posterior wings of the same greyish brown. Cilia white. A little above the abdominal corners are four white spots, placed close together; the two inner ones being smallest. Each of these wings is furnished with three tails, the upper parts of which are black, the other parts white; the middle one being almost as long as the wing, the other two are about half that length.

Under Side. Palpi, head, and breast white. Legs white and brown. Wings fine silvery white. A small, narrow, orange-coloured line begins at the middle of the anterior edge of the fore wings; which, crossing them and the hind ones, runs almost to the abdominal corner, where it suddenly turns back and ends at the abdominal groove. Near this part are two small black spots, one placed between the two outer tails, and the other on the abdominal edge.

Fabricius gives the sexes of this insect as distinct species, under the names cited above, stating India to be the habitat of Hesiodus (or the male). Palisot de Bauvois has, however, satisfactorily cleared up the error, by figuring both sexes from Africa. The male has the disc of the wings, on the upper side, of a rich blue colour.

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EREBUS HIEROGLYPHICUS.

Plate II. fig. 1. .

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Noctuidæ, *Steph.*

GENUS. EREBUS, *Latr.* Thysania, *Dalm.* Noctua, *Fabr.*

EREBUS HIEROGLYPHICUS. Alis dentatis atris; anticis fascià abbreviatâ albidâ maculâque subocellari, posticarum margine bisinuato. (Expans. Alar. 3 unc. 7 lin.)

SYN. Phalæna (Noctua) hieroglyphica, *Drury, App. vol.* 2. *Donovan Ins. India, pl.* 54. *fig.* 3. *Oliv. Enc. Méth.* 8. 253. 11.
Noctua hieroglyphica, *Fabr. Ent. Syst.* III. 2. *p.* 11. *No.* 10.
Phalæna Magdonia, *Cram. Ins.* 2. *t.* 174. *f.* F.

HABITAT: Madras.

Upper Side. Antennæ setaceous. Tongue spiral. Thorax and abdomen dark brown. Wings beautiful mellow dark brown, or deep chocolate, appearing like velvet. Anterior wings with two long, square, yellow spots on each, joined together at their corners, placed near the tips, and joining to the anterior edges of each wing; and also a rather large central eye, almost joining to the anterior edge; iris black and narrow, the pupil large, and the same colour with the wing. Posterior wings immaculate.

Under Side. Palpi filiform at their extremities, and standing erect over the head. Breast, sides, and abdomen dark brown. Wings dark brown, rather lighter than on the upper side. Anterior with three yellow spots on each. Posterior wings immaculate. All the wings dentated; the scollops of the anterior wings being small, and those of the posterior very large.

DEIOPEIA? PUELLA.

Plate II. fig. 2.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Lithosiidæ, *Steph.*

GENUS. DEIOPEIA? *Steph.* Phalæna (Noctua), *Drury.*

DEIOPEIA? PUELLA. Alis anticis albis, maculâ parvâ discoidali nigrâ, fasciisque 4 transversis rubris, posticis abdomineque carneis. (Expans. Alar. 1 unc. 3 lin.)

SYN. Phalæna (Noctua) Puella, *Drury, App. vol.* 2.

HABITAT: Madras.

Upper Side. Antennæ setaceous. Head white. Tongue spiral. Neck red. Thorax red and white. Abdomen grey. Anterior wings white, having a small black central spot in the middle of each, with four narrow red lines crossing them. Posterior wings yellowish flesh-coloured, immaculate.

Under Side. Breast, sides, and abdomen light grey. Anterior wings having the anterior edges tinged with red at the base, the four narrow red lines being faintly seen on this side. Posterior wings coloured as on the upper side.

NOCTUA MYRTÆA.

Plate II. fig. 3.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Noctuidæ, *Steph.*

GENUS. NOCTUA, *Auct.*

NOCTUA MYRTÆA. Testacea, alis strigis nonnullis undatis fuscis. (Expans. Alar. 1 unc. 3 lin.)

SYN. Phalæna (Noctua) Myrtæa, *Drury, App. vol.* 2.

HABITAT: Madras.

Upper Side. Antennæ brown and setaceous. Palpi, head, neck, thorax, abdomen, and wings reddish flesh-coloured; the latter having some very faint waved lines crossing them. Cilia dark brown.

Under Side. Breast, sides, legs, and abdomen coloured as on the upper side. Wings yellowish, with many small narrow streaks. On the external edges of the anterior wings is a dark brown patch, near the tips. Cilia dark brown.

I do not know to which of the modern genera of Noctuidæ this insect belongs.

HELEONA PAPILIONARIS.

Plate II. fig. 4.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Arctiidæ? *Steph.*

GENUS. HELEONA, *Swains.* (*Zool. Illust. N. Ser.* 116.) Gymnautocera? *Guérin.* (*Mag. d'Entomol. t.* 12.)

HELEONA PAPILIONARIS. Alis albido-flavis; margine venisque dilatatis, ramosis, nigris et versus medium coalitis, maculas albas efformantibus. (Expans. Alar. 3 unc. 3 lin.)

SYN. Phalæna (Noctua) Papilionaris, *Drury, App. vol.* 2. *Cramer, t.* 29. *fig.* A.
Phalæna venaria, *Fabr. Ent. Syst.* 111. 2. *p.* 156. *No.* 96. *Gmel. Linn. S. N.* 2470. *No.* 701.

HABITAT: China (*Drury*). "In Indis" (*Fabr.*).

Upper Side. Antennæ dark blue and pectinated. Tongue spiral. Head, neck, and thorax dark mazarine blue, spotted with white. Abdomen deep blue, with six white rings. Wings black, covered with a number of streaks and spots of a dusky brimstone; those nearest the body being much longer than those next the external edges; where eight of them form a kind of border on each wing, and are all placed on the membranous parts between the nerves. Margins of the wings entire.

Under Side. Breast and sides blue. Legs blue and white. Anterior wings with the anterior edges fine mazarine blue. The remaining parts of all the wings are exactly the same as on the upper side.

PAPILIO ANTENOR.

Plate III. fig. 1.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Papilionidæ, *Leach.*

GENUS. PAPILIO, *Auct.* Papilio (Eq. Troj.) *Drury.*

PAPILIO ANTENOR. Alis dentatis concoloribus albo maculatis; posticis caudatis; disco atomis viridibus lunulisque marginalibus rubris. (Expans. Alar. 6 unc. 6 lin.)

SYN. Papilio (Eq. Troj.) Antenor, *Drury, App. vol.* 2. *Donovan Ins. of India, pl.* 15. *f.* 1. *Fabr. Ent. Syst.* 111. 1. *p.* 40. *No.* 9. *Boisd. Hist. Nat. Lep.* 1. *p.* 189. *No.* 2.

HABITAT: Central Africa.

Upper Side. Antennæ red brown, but thickening gradually to the tips. Head fine scarlet. Thorax velvety black. Abdomen white with scarlet rings. Anterior wings black, with three rows of cream-coloured spots on each; the two upper ones next the anterior edge being a little confused by running into each other; the lower one, running parallel with the external margin, is more regular. These spots, being nineteen in number, are of different sizes and shapes; some being round, some oval, triangular, &c. Posterior wings black, with two tails; having four rather broad scarlet crescents placed above

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each of them, the ends of which are verged with cream. On the middle of each wing is placed a great number of small powder-like spots of a golden green colour; and on the abdominal edges, just below the body, are two scarlet and cream crescents placed opposite each other. The upper part of each wing exhibits ten cream-coloured spots of different shapes and sizes, whereof three are larger than all the rest.

Under Side. Breast scarlet. Sides black. Abdomen scarlet, with white rings. Wings coloured nearly as on the other side; the spots being rather more distinct, the crescents broader, and the cream edges stronger than on the upper side. All the wings are dentated; the superior very faintly, the inferior very deeply.

Drury states that he was ignorant from what part of the world his specimen (which was given to him by Mr. Leman) came from. No other individual of this species is recorded to exist in the modern collections, and it is from the figure and description of Drury that all subsequent writers have derived their knowledge of this splendid and unique insect.

Donovan, however, figured this butterfly, or rather copied Drury's figure in his beautiful work upon the Insects of India, observing merely that it might be "mentioned with much propriety amongst the rarest of the Papilio tribe found in India," without giving any account of the source from whence his figure and information had been obtained.

At the sale of Mr. Drury's collection, this butterfly composed lot 4 of the first day's sale, May 23, 1805, and was purchased by Mr. Latham at the price of £2. 12*s.* 6*d.*

The Rev. F. W. Hope, however, possesses a specimen, which he has informed me, that he obtained in a small collection of rare insects from tropical Africa, collected by the late Mr. Ritchie.

THECLA SYLVANUS.

Plate III. fig. 2, 3.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Lycænidæ, *Leach.*

GENUS. THECLA, *Fabr.* Polyommatus p. *Latr. & God.* Hesperia p. *Fabr. olim.* Papilio (Pleb. ruric.) *Linn. Drury.*

THECLA SYLVANUS. Alis suprà maris obscurè violaceis, feminæ albido cœrulescentibus; subtus fuscis, annulis numerosis albis seu albidis; posticis ocellis duobus anguli ani argenteis rufo cinctis. (Expans. Alar. 1 unc. 3 lin.)

SYN. Papilio (Pleb. rur.) Sylvanus, *Drury, App. vol.* 2.
Pap. Larydas, *Cramer, pl.* 282. *fig.* H. *Herbst. tab.* 290. *f.* 1. *Latr. & God. Enc. Méth.* ix. 619. (Polyommatus Larydas.)

HABITAT: Sierra Leone.

Upper Side. Head, thorax, and abdomen black. Wings of a dark mazarine blue, tinged with brown; immaculate. Posterior wings with three small narrow tails to each, which appear to be clusters of small hairs, extending from the wing below the cilia.

Under Side. Palpi, breast, and thighs grey. Wings russet or hair-coloured. Anterior near the tips with a few faint markings. Posterior wings irregularly spotted with black, dark brown, and whitish

spots and marks; two black ones being situated next the abdominal corners, and sparkling with small sapphire-coloured specks placed thereon, being scarcely discernible. All the wings are entire.

POLYOMMATUS ISIS.

Plate III. fig. 4, 5.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Lycænidæ, *Leach.*

GENUS. POLYOMMATUS, *Latr. & God.* Hesperia (rur.), *Fabr.* Argus p. *Scop.*

POLYOMMATUS ISIS. Alis supra violaceo-cœrulescentibus, disco anticarum maculâ, posticarum fasciâ albis; subtus albis; posticis fasciis duabus repandis, et macularum serie nigris, harum duabus internis argentatis ♂. (Expans. Alar. 1 unc. 3¶in.)

SYN. Papilio (Dan. Festiv.) Isis, *Drury, App. vol.* 1.
Hesperia Isarchus, *Fabr. Ent. Syst.* III. 1. *p.* 316. 198. *Herbst. Pap.* 320. *f.* 8, 9. *Enc. Méth.* ix. *p.* 679. *No.* 194. (Pol. Isarchus.)
Papilio Camillus, *Cramer, pl.* 300. *fig.* A. B.

HABITAT: Sierra Leone *(Drury)*. "America, Dom. Drury" *(Fabricius)*. Timor *(Enc. Meth.)*.

Upper Side. Head, black. Thorax and abdomen dark blue. Anterior wings fine violet, a little inclining to purple; round the external edge runs a small narrow black line. Cilia white and black. On the middle of these wings is a white patch, with two small faint dark spots on its upper side. Posterior wings violet-coloured, with the same narrow black line running along the external edges as on the anterior. An irregular white bar crosses these wings from the anterior to the abdominal edges, beginning near the upper corner and ending near the extremity of the body.

Under Side. Palpi, breast, and sides white. Legs black. Abdomen white. Anterior wings white, with some dark brown markings running along the anterior and external edges, whereon are some white streaks and patches. Posterior wings white, whereof one-third next the external edges is dark brown, but next the cilia is whitish; whereon are six small round brown spots, two of which, next the abdominal corners, sparkle with blue like a sapphire; the upper parts of these wings, next the shoulders, have a brown double streak on each. All the wings are entire.

PAPILIO NIREUS.

Plate IV. fig. 1, 2.

ORDER. Lepidoptera. SECTION: Diurna. FAMILY: Papilionidæ, *Leach.*

GENUS. PAPILIO, *Linn.* &c. (Section Equit. Achiv.)

PAPILIO NIREUS. Alis dentatis, nigris, fasciâ communi maculisque viridibus; posticis breviter caudatis; his subtus fasciâ subargenteâ, marginali, nervis divisâ. (Expans. Alar. unc. 4 lin. 8.)

SYN. Papilio Nireus, *Linn. Syst. Nat.* 2. *p.* 750. *No.* 28. *Fabr. Ent. Syst.* III. 1. *p.* 36. *No.* 106. *God. Enc. Méth.* ix. *p.* 48. *No.* 67. *Cram.* 187. A. B. & 378. F. G. *Herbst. Pap. tab.* 37. *f.* 1. 2. *Boisduval. Hist. Nat. Lepid.* 1. 224.

HABITAT: Sierra Leone *(Drury)*. Coast of Guinea, Caffraria, Madagascar *(Bdv.)*. India *(Linn. & Fabr.)*.

Upper Side. Head, thorax, and abdomen velvety black. Wings fine deep black; with two narrow bars of a beautiful Saxon or blueish green colour, which begin about the middle of the anterior edges of the anterior wings, and crossing both them and the posterior, meet at the abdominal edges near the

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abdominal corners, running parallel with the external edges. Anterior wings with two small blue spots placed on each near the tips, and another, larger, divided into three by the nerves, near the middle of the anterior edge; being placed at the top and even with the bar, but divided from it by a small separation of black. The edges of these wings are entire. Posterior wings with six blue spots on each, placed along the external edges; the four lower ones being in pairs, and another small one at the abdominal corners; margins deeply angulated.

Under Side. Breast and sides dark brown, spotted with white. Abdomen brown. Wings dark brown hair-coloured, immaculate, except the posterior ones, which have a row of eleven cream-coloured spots running along the external edges.

The female differs from the male in being somewhat larger in size, with the spots on the upper side of a brighter green colour, and with the marginal row of spots on the under side of the posterior wings of a pearly greyish hue, and with a tinge of this colour upon the disk of the wings. Cramer has figured the male as the female, and vice versa. Mr. Smeathman informed Mr. Drury that this insect feeds upon the orange and lime trees, about which the butterfly is always seen flying, considering it as remarkable that most of the insects which feed upon the orange or citron tribes, have some tinge of green upon them; in like manner the beautiful green snake, so common about Sierra Leone, is always to be found about these kind of trees. These circumstances led our author into a series of observations which, though upwards of half a century old, may still be read not only with pleasure, but with the hope of beneficial results.

"The particular qualities, dispositions, and uses of by far the greater part of insects, as well as of plants, are at present totally unknown to us, nor are the methods by which we are to acquire that knowledge at present ascertained.

"Their colours have hitherto been of no further use to us than merely to discriminate one genus or species from another; and yet it is possible that, by a combination of observations even on the colours of insects, we may form some ideas of their natures and properties.

"The observation of Mr. Smeathman, if well founded, supposing it did not lead to a discovery of the nature and properties of an insect itself, might at least indicate those of the plant on which it feeds. The various species of the *Danai Candidi*, among which are included the different white butterflies of Europe, feed chiefly on such plants as are reckoned not only nourishing, but salutary to the human body, such as the various species of cabbages, coleworts, turnips, &c. Every foreign country produces butterflies of that family; some of them so very like those of Europe, that it is a fair inference they feed on plants of a similar property. This is countenanced by many corroborating circumstances. The *Papilio Iris*, and the various *Fritillary* butterflies fly exceedingly swift; and it appears from Mr. Smeathman's observations, that foreign butterflies that bear a resemblance to them, also fly exceedingly swift. The green and golden *Scarabei* of this country are found to delight in flowers; those of the hot climates are also found on flowers; while the black,

purple, and darker coloured *Scarabei*, are generally found frequenting the excrements of animals, and are, in every quarter of the globe, called Tumble dung-beetles, from their making balls of those substances, and rolling them to their holes. The locust tribes feed here chiefly on grasses and roots; so it appears they do in the torrid zone. Those of the torrid zone are found to be wholesome food. The inference is plain, that those of this climate, in case of necessity, or perhaps even as an article of luxury, might be found the same.

" The caterpillars of certain beetles, from his account, are the greatest delicacies of the hot regions. They might, in some degree, be found to be so here. The palm-worm of the West Indies, which is sought at a monstrous expense, is the caterpillar or maggot of a beetle, of the same genus with that small beetle, which is produced from the maggot or caterpillar in a hazel-nut or filberd. This is often eaten here, and esteemed by those who do so as more delicate than the nut itself.

" The Cantharides is a *green* beetle. A green beetle of our own, *Cerambyx Moschatus*, is found capable of raising blisters; and other *green* beetles may probably have the same effect.

" The butterflies that are found in the cultivated spots of Africa, have in shape and appearance a strong resemblance to many of ours, particularly the white ones. These seldom visit the thick woods; but, when seen in any number, are certain indications of neighbouring plantations. This observation might save the lives of bewildered travellers: as in some instances it might be dangerous to enter into a very large wood, or a thick part of it; in others again, immediate safety might be the consequence of leaving a forest, by following the indications of an open or cultivated spot. The analogy between the colours, the dispositions, and the qualities of insects, may yet be greater, and between insects, and the plants on which they feed, still more useful; for if an insect is found in one part of the world to feed on a plant useful in food, medicine, or manufactures, an insect of a similar appearance, in another part of the world, will in all probability be found to feed on a plant of similar virtues. We do not know but insects may affect, when perfect, to frequent different soils; or to visit the recesses, where valuable drugs remain hid from human search, and useless to mankind.

" As, however, observation and experience have demonstrated, through length of time, that useful hints may be drawn from very trivial properties in the smallest insects, it seems that none are unworthy of being noted. Future travellers may draw useful inferences from those now given, and may add to the number, for the benefit of those who follow after them. There can be no doubt that every species of insect has its use in the creation, and probably there are few from which mankind might not derive some advantage, if their nature and properties were ascertained. We know of a few direct methods, and must therefore in general wait with patience, till a variety of observations, such as Mr. Smeathman has given us, by being frequently compared, strike out new lights upon this part of

science, and elucidate matters at this time buried in obscurity. The uses of many insects in the creation are obvious at the first sight: such, for instance, are those which feed on putrid animal or vegetable substances; while others promote the general good by such remote means, that we cannot immediately see to what end their operations verge. We are not therefore, however, to suppose them mere expletives in the great system of beings; neither are we rashly to attribute an importance to them which they do not deserve, or ridiculously affect to admire circumstances in them of little moment, and praise the Creator for dispositions of a secondary nature.

"When I recommend observations to be made on the most trivial circumstances, it will readily be conceived I do not wish to derogate from experiment, from which alone solid hopes are to be formed, and those which have been hitherto made give great encouragement. Mr. Reaumur has found that the moth, which feeds on clothes, refines the colour with which they are dyed in a wonderful manner; for the excrement of the animal is the colour of the cloth on which it is fed; and therefore, for miniature paintings, infinitely surpasses all others. How far this kind of experiment can be refined on, must be left to the curiosity and diligence of travellers and experimental philosophers, who may perhaps, in some part of the world, realize and improve this reasoning upon a large and useful scale."

MELITÆA CYTHERIS.

Plate IV. fig. 3, 4.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Swains.*

GENUS. MELITÆA, *Fabr.* Argynnis p. *Ochs. Latr. & God.* Papilio (Nymph. Phal.) *Drury.*

MELITÆA CYTHERIS. Alis supra fulvis nigro maculatis, subtus anticis fulvis apice fusco, strigâ albâ, posticis fuscis strigâ discoidali maculâque marginali albis. (Expans. Alar. 1 unc. 3 lin.)

SYN. Papilio (Nymph. Ph.) Cytheris, *Drury, App. vol.* 2.

HABITAT: Falkland Islands.

Upper Side. Head, eyes, thorax, and abdomen dark brown. Anterior wings brown orange, with a number of small black spots thereon (not less than twenty) of various shapes and sizes. Next the body these wings are darker and pilose. Posterior wings are the same colour as the superior, and spotted with many small black spots of different shapes dispersed all over the wings; they are also darker next the body and hairy.

Under Side. Palpi reddish. Anterior wings sandy orange-coloured, rather paler than the upper side. Near the tips is a white streak placed next the anterior margin, and close thereto is a cloud of a dark red colour. Most of the small black spots are seen on this side, but less distinctly. Posterior wings dark red, with several faint clouds. A narrow white streak, about a quarter of an inch in length, is placed near the middle of each of these wings; and another much shorter is placed on the anterior edge, near the upper corner. All the wings are entire.

SATURNIA MYLITTA.

Plate V. fig. 1.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Bombycidæ, *Steph.*

GENUS. SATURNIA, *Schrank.* Attacus, *Germar.* Phalæna (Attacus), *Linn.*

SATURNIA MYLITTA. Alis cervino-fulvis, strigâ ferrugineâ submarginali ocelloque fenestrato, in medio lineâ diviso. (Expans. Alar. 6 unc. 3 lin.)

SYN. Phalæna (Attacus) Mylitta, *Drury, App. vol.* 2. *Oliv. Enc. Méth.* 5. 26. 9. *Fabr. Ent. Syst.* III. 1. 411. *No.* 11. *Gmel. Linn. S. N.* 2403. 463.
Phalæna Paphia, *Cramer, t.* 146. *f.* A.

HABITAT: Bengal.

Upper Side. Antennæ pectinated, reddish fox-coloured. Neck grey. Thorax and abdomen greyish yellow. Wings reddish fox-coloured, having a round transparent eye in the middle of each; those in the superior being largest. These eyes are encircled with a narrow yellow edging, then with a greyish band, and lastly with a narrow black line; the transparent pupil appearing as if a fine hair crossed it. The anterior edges of the superior wings have a grey margin from the shoulders almost to the tips, where the reddish colour is paler than on the rest of the wing. A narrow dark line begins near the tips, and runs along the external edges to the lower corners, which is continued along the external edges of the posterior wings to the abdominal corners. On these wings a faint arched line of a dark colour is observable over each eye.

Under Side. Breast, feet, and abdomen grey. The wings greyish brown; eyes appearing as on the upper side. A faint dark-coloured bar, beginning at the anterior edges of the anterior wings, and running across the lower parts of the eyes, is continued along the posterior ones; where it crosses the middle of the eyes, and ends at the abdominal edges below the body. All the wings are entire; the superior ones being arched, or hooked at the tips.

NOCTUA? SPECIOSA.

Plate V. fig. 2.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Noctuidæ? *Steph.*

GENUS. NOCTUA? *Auct.*

NOCTUA? SPECIOSA. Fulva, alis anticis medio, posticisque albidis, illarum basi fulvo, maculis 6 parvis nigris, dimidio apicali obscuriori. (Expans. Alar. 2 unc. 9 lin.)

SYN. Phalæna (Noctua) Speciosa, *Drury, App. vol.* 2.

HABITAT: Sierra Leone.

Upper Side. Antennæ black, setaceous. Tongue long and spiral. Head, neck, thorax, and abdomen yellow. Anterior wings pale clay-coloured; but next the shoulders yellow, gradually changing to a white towards the middle of the wings, and occupying almost half of them; each wing having six small black spots on the yellow part, three being placed on the anterior edge, and the other three near the shoulder, where likewise is another small spot. Posterior wings white, immaculate.

Under Side. Palpi long and yellow at the base, but the ends are black and filiform. Legs white, striped with brown. Breast and abdomen white. Anterior wings with the tips pale clay-coloured, as on the upper side; all the remaining part being white. A small black bar begins about the middle of

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the anterior margin, and crossing the wing ends at the lower corner. Next the shoulders is a small tuft of hairs of a silver colour placed on each wing. Posterior wings white and immaculate. The margin of the wings entire.

This and several nearly allied species of tropical moths constitute a very distinct subgenus characterized by the prevailing colour, the spots at the base of the wings, the elongated palpi, and the peculiar neuration of the anterior wings. I have not, however, ventured to propose the establishment of a subgenus for them. They appear in some respects to be allied to the genus Leucania.

CALLIMORPHA? PYLOTIS.

Plate V. fig. 3.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Lithosiidæ, *Steph.*

GENUS. CALLIMORPHA? *Latr.* Setina p. *Schr.* Phalæna (Bombyx), *Drury*.

CALLIMORPHA? PYLOTIS. Alis atro-cœruleis, anticis fasciâ latâ mediâ albâ. (Expans. Alar. 2 unc. 6 lin.)

SYN. Phalæna (Bombyx) Pylotis, *Drury, App. vol.* 2. *Oliv. Enc. Méth.* 5. 99. *No.* 255. *Fabr. Sp. Ins. No.* 263. *Syst. Ent.* 585.

Phalæna cribraria, *Clerck. Ins.* 54. *f.* 4.

HABITAT: Bay of Honduras.

Upper Side. Antennæ black and pectinated. Tongue orange-coloured, and spiral. Head, thorax, and abdomen fine mazarine blue. Anterior wings dark mazarine, having a single white bar running from the middle of the anterior edge to the lower corner. A small part of the cilia at the tips is white, the rest being of the same colour as the wings. Posterior wings of the same colour as the superior, and immaculate, except the cilia, which is entirely white.

Under Side. Palpi black. Neck white. Breast and sides mazarine. The legs black and white. Abdomen orange, ringed with mazarine. Wings coloured as on the upper side; but next the body of a finer and stronger blue. The white part of the tips is also stronger and more distinct. The margins of all the wings are entire.

BOTYS (DESMIA?) SERICEA.

Plate VI. fig. 1.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Pyralidæ.

GENUS. BOTYS, *Latr.* SUBGENUS: Desmia? *Westw. in Guer. Mag. d'Ent.*

BOTYS (DESMIA?) SERICEA. Alis sericeis viridi-margaritaceis, anticarum margine antico luteo. (Expans. Alar. 2 unc. 3 lin.)

SYN. Phalæna (Pyralis) Sericea, *Drury, App. vol.* 2.

HABITAT: Gold Coast of Africa.

Upper Side. Head light green. Eyes black. Antennæ thread-like, and very long; appearing at the middle as if they had been broken, and had branched out again to their proper length. Thorax and abdomen light green. Tail dark brown. Wings fine light green, almost transparent, and resembling mother of pearl. Anterior edges of the anterior wings pale orange-coloured.

Under Side. Palpi, neck, breast, abdomen, and legs light green; except the anterior tibiæ, which are pale orange. Tail dark brown. Wings of the same colour as on the upper side, immaculate. Wings entire.

The curious structure of the antennæ of this insect (which is, doubtless, peculiar to the males alone) is very similar to that of Desmia maculalis, (Westw. in Mag. Zool.) but the larger size, pearly wings, and different quarters of the globe in which these two species are found, make it doubtful whether the two insects belong strictly to the same subgenus. It is evidently nearly allied to the British genus Margaritia. Mr. Smeathman informed Drury that this is one of the Phalænæ which fly during the day. A little noise or rustling disturbs it, when it takes rapid flights of twenty or thirty yards, hiding itself with great ingenuity, which makes it difficult to catch.

SATURNIA CYNTHIA.

Plate VI. fig. 2.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Bombycidæ, *Steph.*

GENUS. SATURNIA, *Schrank.* Attacus, *Germar.* Bombyx p. *Fabr.*

SATURNIA CYNTHIA. Alis falcatis luteo-fuscis, fasciâ communi albidâ strigâ basali lunulàque discoidali; anticis ocello parvo apicali. (Expans. Alar. 5 unc. 3 lin.)

SYN. Phalæna (Attacus) Cynthia, *Drury, App. vol.* 2. *Oliv. Enc. Méth.* 5. 30. 26.

HABITAT: China.

Upper Side. Head greyish brown. Antennæ strongly pectinated. Thorax and abdomen greyish. Anterior wings with a bar rising near the middle of the anterior margin, continued along the posterior wings parallel with the external edges, and ending near the abdominal corners; the inner part forming an equilateral triangle. The outer part of this triangle is ash colour, the inner part pale brownish grey, but darker than the rest of the wings. The tips of the superior wings are adorned with a small eye, the lower part of which is black, and the upper part white; from whence a faint white serpentine line runs to the very extremity of the wing. The spaces between the ash colour mentioned above, and the external edges of all the wings, are filled up with light brownish grey, appearing as if powdered thinly with black dust. A small narrow black line runs along the external edges of all the wings, which, beginning at the abdominal corners and ending at the tips, appears as if broken or interrupted just below the eyes. A narrow ash-coloured bar begins on the posterior edges next the shoulders of the superior wings, which, running towards the tips, suddenly turns off, and ends on the anterior edges about half an inch from the shoulders. On the middle of the posterior wings is an ash-coloured crescent, verged at top with black; and about a quarter of an inch above this is another crescent, larger and much fainter, running from the anterior to the abdominal edge, and ending at the extremity of the body.

Under Side. All the parts on this side are nearly of the same colour as on the upper, but not quite so distinct and bright. The angular bar on the anterior wings next the shoulders, and the faint crescent on the posterior, not being discernible. The margins of all the wings are entire; the superior ones being hooked at their tips.

From Dr. Roxburgh's interesting memoir upon the silk-producing moths of the East Indies,* it appears that this species is named the Arundi or Arrindy silk-worm, the caterpillars feeding upon the Arrindi, Ricinus, or Palma Christi. It is capable of being reared in the same way as the common silk-worm, the eggs are hatched in about ten or fifteen days; in about a month the caterpillars attain their full size, during which period they cast their skins three or four times. The caterpillar is from two and a half to three inches in length, each segment being furnished with several small soft conical tubercles, the prevailing colour being pale green. In this state they are very voracious, devouring daily many times their own weight of food. The cocoons are white or yellowish, of a very soft and delicate texture; in general about two or three inches in length, and three in circumference, and pointed at both ends. In this cocoon the chrysalis remains from ten to twenty days, the moth appearing at one end, the period of its final state not extending beyond from four to eight days. The moths are quiet, seldom attempting to fly from the apartment in which they are reared. The silk is so exceedingly delicate and flossy, that it is impracticable to wind it off; it is, therefore, spun like cotton, and the thread thus manufactured is woven into a coarse kind of white cloth, of a loose texture, but of surprising durability, the life of one person seldom being sufficient to wear out a garment made from it, the same piece descending from mother to daughter. It is used not only for clothing, but also for packing light clothes, &c. Some manufacturers in England to whom it was shewn seemed to think that it could be made here into shawls equal to any received from India.

DEIOPEIA ASTREA.

Plate VI. fig. 3.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Lithosiidæ, *Steph.*

GENUS. DEIOPEIA, *Steph.* Phalæna (Noctua), *Drury.*

DEIOPEIA ASTREA. Alis fulvis; anticis fasciis septem albidis nigro-punctatis, posticis fulvis nigro-punctatis. (Expans. Alar. 1 unc. 7 lin.)

SYN. Phalæna (Noctua) Astrea, *Drury, App. vol.* 2. *Oliv. Enc. Méth.* 8. 261. (Noctua A.)
Phalæna (Bomb.) Pylotis? *Fabr. Ent. Syst.* III. 1. 479. *Gmel. Linn. S. N.* 2440. 575.
Phal. Geometra cribrata, *Gmel. Linn. S. N.* 2482. 751.

HABITAT: The Gold Coast, Africa.

Upper Side. Head deep yellow. Antennæ filiform, dark brown. Neck and thorax yellow, with two small black spots on the former, and four on the latter. Abdomen yellow. Wings deep yellow; the anterior being nearly orange-coloured, and having several rows of small black spots crossing them from the anterior to the posterior edges, most of which are very irregular and uneven; the two last next the external edges being the least so. The number of spots on each of these wings is forty. Posterior wings with black spots, but much larger than those on the anterior, except three, which run along the external edges; the whole number being eleven.

* Trans. Linn. Soc. Vol. 7.

Under Side. Palpi yellow, tipped with black. Tongue spiral. Legs, breast, and abdomen yellow, the last spotted with black. Wings deep yellow. The anterior spotted with forty black spots, larger and stronger than on the upper side. Posterior wings also spotted as on the upper side. Edges of all the wings entire.

CALLIMORPHA? GLAUCOPIS.

Plate VI. fig. 4.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Arctiidæ, *Steph.*

GENUS. CALLIMORPHA? *Latr.* Zygæna p. *Fabr.* Phalæna (Bombyx), *Drury.*

CALLIMORPHA? GLAUCOPIS. Collari sanguineo, alis nigricantibus, anticis fasciâ obliquâ niveâ. (Expans. Alar. 2 unc. 3 lin.)

SYN. Phalæna (Bombyx Spiriling.) Glaucopis, *Drury, App. vol.* 2. *Cramer, tab.* 322. *f.* D.
Zygæna Glaucopis, *Fabr. Ent. Syst.* 111. 1. *p.* 400. *No.* 47. *Gmel. Linn. S. N.* 2397. 140. (Sphinx.)

HABITAT: Bengal *(Drury).* Carolina (*Fabr.*).

Upper Side. Head black. Antennæ black, and very large and deeply pectinated. Neck fine scarlet. Thorax and abdomen black, tinged with mazarine. Wings black, immaculate; except the anterior, whereon is a white bar, beginning near the middle of the anterior edge, crossing the wing, and ending at the lower corners.

Under Side. Palpi small and black. Tongue spiral. Breast mazarine, intermingled with black. Legs long and black. Thighs mazarine. Abdomen black, tinged with mazarine. Wings coloured as on the upper side. Edges entire.

IDÆA LYNCEA.

Plate VII. fig. 1.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Swains.*

GENUS. IDÆA, *Fabr. God.* Papilio (Dan. Fest. or Eq. Hel.), *Drury.*

IDÆA LYNCEA. Alis elongatis integerrimis cinerascentibus, venis maculisque permultis nigris; anticis subfalcatis. (Expans. Alar. 6 unc. 9 lin.)

SYN. Papilio Lynceus, *Drury, App. vol.* 2.
Papilio Idea, *Stoll. Suppl. Cramer, pl.* 42. *f.* 1.
Idea Lyncea, *Enc. Méth.* ix. *p.* 195.

HABITAT: The Island of Johanna, near Madagascar.

Upper Side. Antennæ black and subfiliform. Head, neck, and thorax black, spotted, and streaked with white. Abdomen black. Wings almost transparent, and of a glassy hue, much resembling common glass; having a great number of black spots like velvet on them of different shapes and sizes, some being round, some oblong, and others like streaks; there being on each of the anterior wings twenty-eight distinct ones, besides those placed next the anterior edges, which are not easily ascertained, from their running into one another. Posterior wings with thirty-three distinct spots like those on the anterior, whereof some appear double.

Under Side. Palpi white. Tongue black, and spiral. Breast, sides, and legs streaked with black and white. Abdomen white. Wings coloured as on the upper side. Margins of the wings entire.

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The Linnæan specific name of the type of the present genus was Papilio Idea, a name admirably expressive of the delicate transparent structure of these butterflies. As several closely-allied species were discovered in addition to the original type, all partaking of the same appearance, Fabricius transposed the original specific name into that of the genus; a new specific name, Agelia, being given to the original species, which is beautifully figured by Donovan, in his Insects of India, Pl. 24, and is by him considered identical with the insect figured by Drury. I have adopted the opinion of the authors of the Encyclopédie Méthodique, who consider the two insects as distinct.

ACRÆA CAMŒNA.

Plate VII. fig. 2.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Sw.*

GENUS. ACRÆA, *Fabr. Latr. God.* Papilio (Helicon.), *Fabr. &c.*

ACRÆA CAMŒNA. Alis oblongis fuscis, posticis basi nigro-punctatis ad extimum fascià flavescente transversâ extus nigro-marginatâ. (Expans. Alar. 2 unc. 9 lin.)

SYN. Papilio (Eq. Helic.) Camœna, *Drury, App. vol.* 2. *Herbst. Pap. t.* 81. *f.* 3. *Fabr. Ent. Syst.* III. 1. *p.* 173. *No.* 539. *Enc. Méth.* ix. *p.* 234. (Acræa C.)

HABITAT: Cape Coast, Africa.

Upper Side. Antennæ black. Neck, thorax, and abdomen black, spotted with white. Anterior wings dark snuff colour, immaculate. About two-thirds of the posterior wings (upwards) also snuff-coloured, having some faint black spots thereon, seen more distinctly on the other side; beneath this is a yellow clay-coloured bar, running from the abdominal corner and ending near the external edge by the upper corner; below this bar is a black indented margin running along the external edge, with some small faint spots thereon, which are much stronger on the other side. Abdominal groove clay-coloured; and on each wing next the shoulders is a small triangular clay spot.

Under Side. Palpi clay-coloured. Breast and sides black, with white spots. Anterior wings coloured as on the upper side. Posterior wings clay-coloured, with twelve black distinct spots, two near the upper corners being small and round. These wings next the breast are black, with some white spots thereon; and along the external edges is a black indented margin, with eight small white spots on it, two of which next the abdominal corners are joined together. Margins of the wings entire.

HELICONIA DIAPHANA.

Plate VII. fig. 3.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Sw.*

GENUS. HELICONIA, *Fabr. Latr. God.* Papilio (Eq. Helicon.), *Drury, &c.*

HELICONIA DIAPHANA. Alis oblongis integerrimis hyalinis, margine omni fasciâque transversâ abbreviatâ anticarum fusco-nigris, posticis subtus costâ baseos sulphureâ. (Expans. Alar. 2 unc. 3 lin.)

SYN. Papilio (Eq. Helic.) Diaphanus, *Drury, App. vol.* 2. *Cramer, pl.* 231. C. *and pl.* 315. D. E. *Fabr. Ent. Syst.* III. 1. *p.* 184. *No.* 570.

HABITAT: Jamaica, Brazil to Virginia *(Enc. Méth.).*

Upper Side. Antennæ black, and very long. Thorax and abdomen dark brown. Wings transparent, vitreous. Anterior ones with the posterior edges bending as it were inwards. A small narrow border of dark brown runs entirely round the edges of these wings; and on the anterior edges, about a third from the tips, runs a dark brown streak towards the middle of the wing, close to which is a small white spot joining to the anterior edge. Posterior wings having also a very narrow border running about two-thirds round them, and stopping at the abdominal edges; some long yellowish hairs are placed on the anterior edges near the body.

Under Side. Palpi, breast, sides, ash-coloured. The dark brown borders surrounding the wings appear on this side of an orange brown colour; the rest as on the upper side. Margins of the wings entire.

NYMPHALIS SALMACIS.

Plate VIII. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Sw.*

GENUS. NYMPHALIS, *Latr. God.* Papilio (Nymphalis Phal.), *Drury, &c.*

NYMPHALIS SALMACIS. Alis dentatis, supra nigris disco cœruleo-radiatis, subtus fuscis; fasciâ strigâque maculari albidis (♀). (Expans. Alar. 4 unc. 3 lin.)

SYN. Papilio (Nymph. Ph.) Salmacis, *Drury, App. vol.* 2. *Herbst. tab.* 166. *f.* 5. 6. *Fabr. Ent. Syst.* III. 1. *p.* 132. *No.* 408.
Papilio Omphale, *Stoll. Suppl. Cram. pl.* 26. *f.* 1. 1. A.

HABITAT: Sierra Leone (*Drury*). Amboina (*Stoll.*).

Upper Side. Antennæ black. Neck spotted with grey. Thorax and abdomen black. Anterior wings next the body black brown, but at the tips russet, or dark hair-coloured; about a quarter of an inch from thence are two small white spots placed on each wing, near the anterior margin; near the middle is a short white bar, crossed by the black nerves of the wing, whose under part joins to a patch of blue which runs to the posterior margin. Posterior wings next the body black brown, but along the external edges a little lighter. A white bar on each rises at the abdominal groove, and runs to the middle of the wing towards the anterior edge, being margined with blue which seems to shoot in rays; a row of twelve small white spots runs along the external edge in pairs.

Under Side. Palpi, neck, and breast black brown, spotted with white. Anterior wings russet, darkest next the body; the white spots and bar being very plain on this side, with the addition of a row of white spots running half way along the external edges. Posterior wings russet, with the same marks and spots as on the other side, but rather of a pearl colour. Margins of the wings dentated, the indentings being white.

PIERIS PASITHOE.

Plate VIII. fig. 3, 4.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Papilionidæ, *Leach.*

GENUS. PIERIS, *Schrank. Latr. God. Boisduval.* Pontia p. *Ochs.* Papilio (Dan. Cand. or Heliconii), *Linn. Drury, &c.*

PIERIS PASITHOE. Alis suboblongis nigris, suprà cœrulescenti-albo-maculatis, posticis subtùs disco flavo, nigro venoso, fasciâque baseos ferrugineâ incurvâ. (Expans. Alar. 3 unc. 6 lin.)

SYN. Papilio (Helicon.) Pasithoe, *Linn. Syst. Nat.* 2. 755. *No.* 53. *Fabr. Ent. Syst.* III. 1. *p.* 179.
Papilio (Dan. Cand.) Dione, *Drury, App. vol.* 2.
Papilio Porsenna, *Cramer, pl.* 43. *fig.* D. E. & *pl.* 352. *fig.* A. B.
Pieris Pasithoe, *Enc. Méth.* IX. *p.* 148. *Boisduval Hist. Nat. Lep.* 1. *p.* 451.

HABITAT: India (*Drury*) China, Bengal (*Boisduval*).

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Upper Side. Antennæ black. Head, thorax, and abdomen dirty black. Wings soot-coloured, or dirty black, having a small white spot in the middle of the anterior; a row of oblong white spots runs from the anterior edge to the lower corner, some being pointed and placed a little distance from the tips; base of the wings powdered with white dust, increasing to a clear white as it recedes from the body. The posterior wings powdered in the same manner; and having four pointed white spots on each, crossing them from the upper to the abdominal corners. Abdominal groove yellow, extending towards the middle of the wing.

Under Side. Palpi, sides, and breast sooty. Neck and abdomen grey. Anterior wings as on the upper side, but the white more distinct. Posterior wings next the body black, and surrounded by a red circle. The remainder of the wings principally yellow, having the nerves and also a margin running along the external edges soot-coloured. Margins of the wings entire.

PAPILIO MENESTHEUS.

Plate IX. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Papilionidæ, *Leach.*

GENUS. PAPILIO, *Auct.* Papilio (Eq. Ach.) *Drury.*

PAPILIO MENESTHEUS. Alis dentatis, caudatis, nigris, fascià maculari maculisque marginalibus flavis, omnibus subtus basi albido striatis, posticis lunulis rufis cœrulescentibusque. (Expans. Alar. 5 unc. 3 lin.)

SYN. Papilio (Eq. Ach.) Menestheus, *Drury, App. vol.* 2. *Cram. pl.* 142. *fig.* A. B. *Fabr. Ent. Syst.* III. 1. *p.* 31. *Enc. Méth.* ix. *p.* 59. *Boisd. Hist. Nat. Lep.* 1. *p.* 236.

HABITAT: Sierra Leone *(Drury).* India (erroneously, *Fabr.*).

Upper Side. Antennæ brown. The head, thorax, and abdomen greenish black. Anterior wings black, covered with minute green spots, the tips like black velvet. Some long russet-coloured hairs, occupying a space the size of a sixpence, are situated close to the posterior margin, near the lower corner; there are also twenty lemon-coloured spots on each, eight of which are very small and marginal; eight other oblong spots form a bar, rising on the anterior margin and running obliquely across the wings, meeting near the extremity of the body. Posterior wings velvety black, covered at the base with small green spots, and having five lemon spots running along the external edges. Each of these wings is furnished with a tail, having a lemon spot on each side; and on the abdominal edge is an eye, whose under part is red, and the upper blue. Near the upper corner is a red spot, hidden in the figure by the superior wings.

Under Side. Head and breast ash-coloured. All the spots and marks which on the upper side are lemon colour, on this are pale cream-coloured. Anterior wings soot-coloured, the spots very distinct; those next the external edges being larger, with many cream-coloured stripes at the base running longitudinally parallel with the tendons both of the anterior and posterior wings. These are adorned with several eyes of velvety black; the upper sides being blue, and the under orange verged with cream. The marginal spots are considerably larger than on the upper side.

THECLA THETIS ♀.

Plate IX. fig. 3, 4.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Lycænidæ, *Leach.*

GENUS. THECLA, *Fabr.* Polyommatus p. *Latr. God.* Hesperia p. *Fabr. Linn.* Papilio (Dan. Cand.), *Drury.*

THECLA THETIS. Alis integris; maris supra fulvis margine exteriori nigro; fœminæ fuscis disco albo: subtus albis. (Expans. Alar. 1 unc. 9 lin.)

SYN. Papilio Thetis, *Drury, App. vol.* 2. *Cramer, pl.* 238. *fig.* D. ♀.
Hesperia Phædrus, *Fabr. Ent. Syst.* III. 1. *p.* 307. ♂.
Hesperia Æsopus, *Fabr. op. cit. p.* 307. ♀.
Papilio Cinyra, *Cram. pl.* 238. C. ♂.
Polyommatus Phædrus, *Enc. Méth.* ix. *p.* 675. *No.* 181.

HABITAT: Bombay (*Drury*). Bengal, Coromandel (*Enc. Méth.*).

Upper Side. Antennæ black. Head, thorax, and abdomen dark brown. Wings russet, or dark hair-coloured, with a white spot in the middle of each, of an oblong shape in the anterior wings, and much smaller and placed transversely in the posterior. Cilia and abdominal groove white.

Under Side. Palpi, breast, and legs white. Wings on this side fine silvery white, immaculate. Margins of the wings entire.

I have reverted to the original name first proposed by Drury.

BIBLIS UNDULARIS.

Plate X. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Sw.*

GENUS. BIBLIS, *Fabr. Latr. God.* Papilio (Nymphalis), *Fab. olim.* Papilio (Nymph. Phal.), *Drury.*

BIBLIS UNDULARIS. Alis dentatis nigris aut fuscis; anticis suprà fasciâ apicali cyaneâ, posticis externe ferrugineis, omnibus subtus ferrugineo undulatis, punctoque costali posticarum albo. (Expans. Alar. 2 unc. 7 lin.)

SYN. Papilio (Nymph. Phal.) Undularis, *Drury, App. vol.* 2. *Cramer, pl.* 256. *fig.* A. B. *Fabr. Ent. Syst.* III. 1. *p.* 127. *No.* 389. *Enc. Méth.* ix. *p.* 326. (Biblis Und.)

HABITAT: East Indies (*Drury*). Coromandel, Java (*Enc. Méth.*).

Upper Side. Antennæ brown. Head, thorax, and abdomen brown. Superior wings dark brown, somewhat lighter along the external edges, with an oblong subapical blue streak, beneath which are four oval blue spots placed along the external edges, discernible only when the light falls in a particular direction. Posterior wings reddish clay-coloured, surrounding a dark brown patch placed on the upper part.

Under Side. Breast, abdomen, and legs brown. Wings dark reddish clay, with short red streaks all over the wings, and a white spot placed at the middle of the anterior edges of the posterior wings. Margins of the wings dentated.

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NYMPHALIS (LIMENITIS) ARTHEMIS.

Plate X. fig. 3, 4.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Sw.*

GENUS. NYMPHALIS, *Latr.* Papilio (Nymphal. Phal.), *Linn. Drury, &c.* SUBGENUS: Limenitis. *Fabr. Steph.*

NYMPHALIS (LIMENITIS) ARTHEMIS. Alis dentatis fuscis; utrinque fascià communi albâ strigisque duabus lunularum cœrulescentium, subtus rufo-maculatis. (Expans. Alar. 2 unc. 6 lin.—3 unc.)

SYN. Papilio (Nymphal. Phal.) Arthemis, *Drury, Append. vol.* 2. *Say. Amer. Entomol.* 2. *pl.* 23.
Papilio Lamina, *Fabr. Ent. Syst.* III. 1. *p.* 118. 361. *Enc. Méth.* ix. *p.* 380. (Nymphalis L.)

HABITAT: New York.

Upper Side. Antennæ, head, thorax, and abdomen black. Wings black, at the base surrounded by a white band, separating it from the external part, which is black likewise. On the anterior wings, near the tips, are four small white spots, the two uppermost being largest; along the external edges is a narrow marginal row of small blue crescents, continued along the posterior wings, where it is double, having above it a row of brown orange spots, verged at top with blue. A white bar begins on the middle of the anterior edges of the anterior wings, which, crossing them and the posterior, ends at the extremity of the body.

Under Side. Palpi, head, breast, and legs brown. The parts that on the upper side are black, are of a fine red brown. The basal parts having some brown orange spots on both wings, verged with black. Margins blue; scollopings edged with white. Margins of the wings dentated; the inferior ones most.

Mr. Say observes of this beautiful species that it occurred sparingly in the North-western territory, during the advance of Major Long's expedition toward Lake Winnepec. He also found it at that lake as well as at the Lake of the Woods, and in other parts of Upper Canada. He procured specimens likewise from Arkansaw, in the expedition to the Rocky Mountains, and received it from Cambridge (Massachusetts).

PIERIS EUCHARIS.

Plate X. fig. 5, 6.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Papilionidæ, *Leach.*

GENUS. PIERIS, *Schrank. Latr. God. Boisduval.* Pontia p. *Ochs.* Papilio (Dan. Cand. or Heliconii), *Linn. Drury, &c.*

PIERIS EUCHARIS. Alis suboblongis integerrimis, supra albis, omnibus utrinque venis limboque nigris: posticis subtùs flavis, maculis marginalibus coccineis alboque cinctis. (Expans. Alar. 3 unc. 2 lin.)

SYN. Papilio (Dan. Cand.) Eucharis, *Drury, App. vol.* 2. *Cramer, pl.* 201. B. C. ♂. 202. C. ♀.
Papilio (D. C.) Hyparete, *Fabr. Ent. Syst.* III. 1. *p.* 176. (Exclus. Syn. *Linn.*)
Pieris Epicharis, *God. Enc. Méth.* ix. *p.* 153. *No.* 122. *Boisd. Hist. N. Lepid.* 1. *p.* 456.

HABITAT: Bombay.

Upper Side. Antennæ black. Head grey. Thorax and abdomen grey. Anterior wings white: nerves black, with seven white oblong spots placed along the external edges and tips on a black ground. Posterior wings cream-coloured, with six oval flesh-coloured spots placed along the posterior margin on a black ground, separated by the black nerves.

Under Side. Palpi, breast, and abdomen grey. Anterior wings white, with very broad and black nerves, forming white oblong spots on the upper side. Posterior wings yellow, with a broad black margin along the external edges, whereon are placed six oval scarlet spots, edged or surrounded with white. Nerves black and broad. Margins of the wings entire.

Drury correctly considered this species as distinct from the Linnæan Hyparete, and accordingly named it Eucharis. Fabricius, notwithstanding, united the two species, and applied the name Eucharis to another Indian species (Anthocaris Eucharis of Boisduval, but which it would be more correct to name Aurora after Cramer). Godart, in order to obviate the confusion arising from two distinct species having the same specific name, altered the oldest name (Eucharis, Drury), instead of the incorrectly imposed name of Fabricius. I have therefore reverted to the name proposed by Drury, the other species being now removed to the genus Anthocaris.

SATURNIA PROMETHEA.

Plate XI. fig. 1, 2. ♂.—Plate XII. fig. 1, 2. ♀.

ORDER: Lepidoptera. SECTION: Nocturna FAMILY: Bombycidæ, *Steph.*

GENUS. SATURNIA, *Schrank.* Attacus, *Germar.* Phalæna (Attacus), *Linn.*

SATURNIA PROMETHEA. Alis subfalcatis, maris fuscis, fœminæ ferrugineis, fasciâ tenui undatâ communi pallidâ margine griseo, anticis utrinque ocello atro. (Expans. Alar. 4 unc. ♂. 4 unc. 3 lin. ♀.)

SYN. Phalæna (Attacus) Promethea, *Drury, App. vol.* 2. *Fabr. Ent. Syst.* 111. 1. 411. *No.* 12. *Gmel. Linn. S. N.* 2403. 464. *Cram. Ins. tab.* 75. A. B. ♂. 76. A. B. ♀. *Abbot & Smith Ins. Georgia,* 1. *tab.* 46. *Oliv. Enc. Méth.* 5. 27. 12. *Pal. Bauv. Ins. d'Afr. et d'Amer. Lep. pl.* 21.

HABITAT: New York, Virginia, Georgia.

MALE.—*Upper Side.* Antennæ strongly pectinated, dark brown. Head, thorax, and abdomen the same. Anterior wings very dark chocolate, hooked at the tips; having a margin of light hair colour running along the external edges from the tips to the lower corners, through the middle of which runs a narrow black serpentine line like a hair, dividing the margin into two shades, the external one being darkest; near the tips is a black spot like an eye, partly surrounded by a blue iris; a narrow waved line of a light hair colour begins at the anterior edge, about one-third from the tips, and, crossing both the anterior and posterior wings, ends about half an inch below the body. Posterior wings of the same colour as the anterior, having a hair-coloured margin running round them; being also divided in the middle by a waved narrow line, above which are several dark-coloured spots and marks.

Under Side. Breast, legs, and abdomen of a beautiful dark chocolate colour. Anterior wings at the base dark chocolate, with a small single spot in the middle of each; about a third part of these wings, next the external edges, is hair-coloured, appearing next the chocolate part to be thickly powdered with grey, so as to form a margin along the chocolate part of that colour. The black eye, and hair-coloured margin, as on the upper side. The middle of the posterior wings fine chocolate, surrounded, except at the abdominal edges, with hair colour, and like the superior finely powdered and verged with grey; about the middle of the chocolate field is a small transverse white streak; the hair-coloured margin less distinct. Margins of all the wings entire.

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FEMALE.—*Upper Side.* Antennæ brown and pectinated. Thorax and abdomen red brown. Anterior wings dark red next the body, from whence a narrow light-coloured bar begins at the anterior edge, and running towards the posterior suddenly turns off and ends at the body, forming an obtuse angle; another light-coloured waved bar crosses the wings, ending on the abdominal edges a little below the body; the inner side of this bar is a dark chocolate, and between it and the angle of the first bar is placed a light-coloured triangular mark; near the tips is placed a small black eye, partly surrounded by a blue iris; along the external margins of all the wings runs a dark buff edge, through the middle of which runs a small narrow line; the space between this margin and the waved bar is of a dark red, finely powdered next the bar with grey. Posterior wings, within the waved bar, dark brown chocolate; the hairs along the abdominal edges greyish; and on the middle of the chocolate ground is a light-coloured triangular mark; several submarginal red spots of different sizes, with a small narrow irregular line running between them and the cilia; the space between this margin and the waved bar is dark red, that next the bar is powdered as it were very thickly with small grey spots like dust.

Under Side. Breast, legs, and abdomen dark red, the sides streaked with white. Anterior wings having only two divisions, separated by the waved bar mentioned above: the inner division of a fine bright chocolate, whereon the small triangular marks are faintly seen; the external division as on the upper side, but with the markings more distinct. Posterior wings with the part answering to the dark brown chocolate being of a fine dark red, verged with black and white, and surrounded entirely, except the abdominal edges, by the grey powdered field. Margins entire.

The transformations to which Lepidopterous insects are subject are amongst the most remarkable phenomena of insect life. In the different states to which each is liable, a series of changes is exhibited which has been compared, by an admired writer, to what might be supposed to be undergone by an animal which for the first five years of its life, exhibited the form of a serpent, which then penetrated into the earth, spun for itself a silken coffin, contracting itself into a limbless form resembling, more than any thing else, an Egyptian mummy; and which, lastly, after remaining in this state for a length of time, burst into the air a winged bird. Of these states, it may well be conceived, that the second requires, from its inactivity and helplessness, a secure retreat, where, removed and secure from the attack of its enemies, it can rest its appointed period during which the organs of flight acquire their full development. We accordingly find that the varied manner in which the caterpillars of the different species prepare their retreats, affords one of the most interesting branches of investigation in the natural history of the Lepidoptera. And in this respect, the species now under consideration certainly exhibits one of the most interesting manœuvres hitherto recorded amongst the insect tribes, and which is described by Mr. Peale in his beautiful "Lepidoptera Americana."* This moth is very abundant in the vicinity of Philadelphia, at least, judging from the number of cocoons seen hanging from the branches of the Sassafras (Laurus Sassafras), and Spice-wood (L. Benzoin); and which, by an ordinary observer, would be readily mistaken for withered leaves which had withstood the blasts of winter. After the caterpillar has attained its full size, and lost the voracious

* Quoted in the British Cyclopædia of Natural History, Vol. 1. p. 748.

appetite which had hitherto been its predominant character, it begins its preparation for the great transformation it has to undergo, by selecting a perfect leaf, the upper surface of which it covers with a fine light yellowish brown silk, extending this coating with great skill and foresight, *over the footstalk of the leaf*, and attaching it firmly to the branch, so as to secure the leaf from being separated by any accident. This preliminary operation having been accomplished, the caterpillar next draws the edges of the leaf together, thus forming a perfect external covering or mantle, in which it spins a fine strong and durable cocoon of fine silk. In this habitation the little architect passes the winter secure from birds and other enemies. As soon as the cocoon has been completed, the caterpillar sheds its skin, and is transformed into a chrysalis. At first the leaf enveloping the cocoon remains green, but soon changes to a red or brown, when it becomes brittle, and is gradually carried away by the winds and storms of winter, until, finally, nothing remains except the cocoon itself, which is firmly suspended by the silk which once covered the footstalk of the leaf.

Mr. Abbot states that the caterpillar also feeds upon the Snowdrop-tree (Halesia tetraptera, Linn.) Poplar, Bay, &c. Some individuals spin up in May, and the moth appears in June; others, as above described, pass the winter in the chrysalis state.

CALLIMORPHA? FAMULA.

Plate XI. fig. 3.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Arctiidæ, *Steph.*

GENUS. CALLIMORPHA? *Latr.* Zygæna p. *Fabr.* Phalæna (Bombyx), *Drury.*

CALLIMORPHA FAMULA. Alis albis, dimidio apicali margineque externo nigris, anticarum maculâ ovali obliquâ albâ, collo fulvo. (Expans. Alar. 2 unc.)

SYN. Phalæna (Bombyx spiriling.) Famula, *Drury, App. vol.* 2.

HABITAT: Calabar, in the Bight of Benin, Africa.

Upper Side. Antennæ long and pectinated. Thorax spiral. Neck orange-coloured. Thorax and abdomen dusky grey. Anterior wings about half way from the tips black, but at the base are of a pellucid white; being surrounded along the anterior edge and part of the posterior with black; an oblong white spot is placed near the tips on the black part. Posterior wings black and white; the white entirely surrounded by the black, which on the anterior and abdominal edges is very narrow.

Under Side. Palpi orange-coloured, black at the tips. Neck, breast, and sides orange. Feet black. Thighs white. Abdomen white, annulated with dusky grey. Anterior wings as on the upper side, the black parts being of a russet hue. Posterior wings differ a little, the white part running down to the middle of the external edges, with a white spot at the upper corners. Margins of the wings entire.

ODONESTIS? SERVULA.

Plate XI. fig. 4.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Bombycidæ, *Steph.*

GENUS. ODONESTIS? *Germar.* Phalæna (Noctua), *Drury.*

ODONESTIS? SERVULA. Alis luteis, maculâ parva discoidali marginibusque externis tenuè fuscis. (Expans. Alar. 4 unc.)

SYN. Phalæna (Noctua) Servula. *Drury, Append. vol.* 2.

HABITAT: Madras.

Upper Side. Antennæ slightly pectinated. Tongue short. Head, thorax, and abdomen light yellowish sand-coloured. Wings yellow buff-coloured; the anterior having a small brown spot in the middle of each, and the external edges margined with brown. Posterior wings having a brown patch in the middle of each, with the external edges of the same colour.

Under Side. Breast, legs, abdomen, and wings buff-coloured, immaculate. Margins of the wings entire.

NOCTUA ANILIS.

Plate XII. fig. 3.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Noctuidæ.

GENUS. NOCTUA, *Auct.* SUBGENUS. ——?

NOCTUA ANILIS. Alis badio-fuscis; strigis duabus obliquis, externâ abbreviatâ, albis. (Expans. Alar. 1 unc. 6 lin.)

SYN. Phalæna (Noctua) Anilis, *Drury, App. vol.* 2.

HABITAT: Virginia.

Upper Side. Antennæ small, filiform. Head, thorax, and abdomen dark hair-coloured. Wings dark hair-coloured. Anterior having a narrow white line crossing them, about the middle, from the anterior to the posterior edges; between this and the tips is another short white streak placed on the anterior edge. Posterior wings immaculate. Cilia ash-coloured.

Under Side. Palpi, breast, legs, and abdomen russet-coloured. Wings also russet-coloured, with some faint marks, occasioned by the white lines on the upper side appearing through. Margins of the wings entire.

NEMEOPHILA FIGURATA.

Plate XII. fig. 4.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Arctiidæ, *Steph.*

GENUS. NEMEOPHILA, *Stephens.* Eyprepia p. *Ochs.* Chelonia p. *God.*

NEMEOPHILA FIGURATA. Alis anticis nigris, fasciâ longitudinali duabus alteris convergentibus connexâ, albis, posticis sanguineis margine maculâque externâ nigris. (Expans. Alar. 1 unc. 6 lin.)

SYN. Phalæna (Bombyx) figurata, *Drury, App. vol.* 2. *Pal. Bauv. Ins. d'Afr. et d'Amer. Lep. pl.* 24. *f.* 4. ♀. (Alis posticis nigris puncto rufo.)

HABITAT: Virginia.

Upper Side. Antennæ dark brown and pectinated. Thorax cream-coloured and black. Abdomen black, the sides red. Anterior wings black; having a cream-coloured line running from the shoulders.

parallel to and at a small distance from the posterior edge, towards the lower corner; stopping at about one-third from the external edge, from whence near the end of this line arises two others, which run almost to the anterior edges. Posterior wings red in the middle; surrounded, except on the abdominal edges, by a broad black margin.

Under Side. Palpi hairy and black. Breast, legs, and abdomen black. Wings as on the other side; but the colours are not so bright and distinct. Margins of the wings entire.

SATURNIA EPIMETHEA.

Plate XIII. fig. 1.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Bombycidæ, *Steph.*

GENUS. SATURNIA, *Schrank.* Attacus, *Germar.* Phalæna (Attacus), *Linn.*

SATURNIA EPIMETHEA. Alis subfuscis strigâ communi subapicali albâ, posticis acutè angulatis, ocello disci fulvo margine nigro.

SYN. Phalæna (Attacus) Epimethea, *Drury, Append. vol.* 2. *Fab. Ent. Syst.* III. 1. 414. *No.* 23. *Gmel. Linn. S. N.* 2404. 472. *Cramer, Ins.* 15. *tab.* 176. *f.* A. *Oliv. Enc. Méth.* 5. 29. 21.

HABITAT: New Calabar, Coast of Guinea.

Upper Side. Antennæ strongly pectinated; the extremities appearing like threads. Thorax light brown, tinged with red. Abdomen grey brown. Anterior wings light grey brown, tinged with red at the base; having a narrow dark-coloured bar verged with grey running from the anterior to the posterior edges, parallel and at a little distance from the external margin. Posterior wings grey brown, terminating behind in points like acute angles; a dark narrow bar, edged with white, crosses these wings from the upper corners to the abdominal edges, dividing them into two compartments; in the uppermost of which are placed two eyes, whose centres are yellow, surrounded with black irides edged with red, and which also are encircled with ash-coloured rings. Above these eyes the wings are dark-coloured, almost black; but next the body are of a reddish hue.

Under Side. Legs black. Thorax and abdomen same colour as on the upper side. Wings nearly the same colour as on the upper side; the bars being plain and distinct, but the eyes are not observable here.

DRYOCAMPA VIRGINIENSIS.

Plate XIII. fig. 2.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Bombycidæ, *Steph.*

GENUS. DRYOCAMPA, *Harris in Hitchcock's Report on the Geology, &c. of Massachusets (Amherst Mass.* 1834. roy. 8vo.)

DRYOCAMPA VIRGINIENSIS. Alis cervinis, anticis puncto parvo discoidali albo, fasciâque obliquâ pallidiori. (Expans. Alar. 2 unc. 7 lin.)

SYN. Phalæna (Bombyx) Virginiensis, *Drury, Append. vol.* 2.
Phalæna pellucida, *Abbot & Smith Ins. Georg. t.* 58?
Phalæna Astynome? *Oliv. Enc. Méth.* 5. 43. 73.

HABITAT: Virginia.

Upper Side. Antennæ setaceous. Head, thorax, and abdomen dark orange. Wings faint fox-coloured; immaculate, except the anterior ones, which have a faint light spot on each, about a third of

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an inch from the shoulders, and a faint line which runs from the tips to the middle of the posterior edges.

Under Side. Legs, sides, thorax, and abdomen dark orange. Wings with a faint narrow bar crossing them near their external edges, dividing the wings into two partitions; the lower ones being of the same colour as on the upper side, but those above the bar are of a yellowish fox-colour. Margins of the wings entire.

It is questionable whether this figure represents the Phalæna senatoria or pellucida of Abbot and Smith, by whom the transformations of both species have been illustrated; Smith citing Drury's figure with doubt, as belonging to pellucida. I have much pleasure in adopting the present well-marked genus proposed by Dr. Thaddeus W. Harris, one of the most distinguished American entomologists, in the appendix to the work above referred to; and respecting which I am indebted to that gentleman for the following communications:—"The male of Dryocampa senatoria, of Abbot and Smith, has the basal half of the antennæ pectinated on both sides, and the apex simple, as in Bombyx (Cerocampa, Kirby; Ceratocampa, Harris's Cat.) regalis and imperialis; and as they are described to be in the genus Zeuzera. The larvæ are naked, striped, rigid, with acute tubercles, and two thread-like horns on the second segment. They devour the leaves of forest trees, particularly oaks, and enter the earth to become pupæ. The edges of the segments of the pupæ are denticulated. On account of these peculiar characters, I have ventured to assign to this a new generical name; under which will be included also Bombyces pellucida, and Stigma, Fabr., figured in Abbot and Smith's Lepidopterous insects of Georgia; together with B. rubicunda, F. all of which are now found to inhabit Massachusets."

In addition to the characters mentioned by Dr. Harris, the peculiar form of the posterior wings of the males of these moths may also be noticed, and which are of a triangular form, somewhat like those of Erycina menetas (see vol. 3. pl. 8. fig. 3.), but extending to the extremity of the abdomen. This genus is not far removed, in its natural affinities, from that of Ceratocampa, (see vol. 1. pl. 9.)

ÆGOCERA AMABILIS.

Plate XIII. fig. 3.

ORDER: Lepidoptera. SECTION: Crepuscularia? FAMILY: Sesiidæ, *Steph.*

GENUS. ÆGOCERA, *Latr. Boisduval.*

ÆGOCERA AMABILIS. Alis anticis rufis, maculis (nigro marginatis) margineque interno, albidis; posticis fulvis maculâ discoidali margineque postico nigris. (Expans. Alar. 1 unc. 6 lin.)

SYN. Phalæna (Noctua) Amabilis, *Drury, App. vol.* 2.
Ægocera Amabilis, *Boisduval Hist. Nat. Lepid. pl.* 10. B. *f.* 6.

HABITAT: Coast of Guinea.

Upper Side. Head brown. Antennæ filiform. Thorax and abdomen yellow brown. Superior wings fine darkish red, with several yellow spots thereon of different shapes, each encircled with black: the posterior and external edges having yellow margins. Posterior wings deep yellow, inclining to

orange, with a black oval spot near the middle of each. Along the external edges is a black margin, reaching from the upper to the abdominal corners; the upper edge being scolloped.

Under Side. Legs, sides, thorax, and abdomen pale orange. Anterior wings entirely pale orange and dusky black, without any mixture of red, &c. Posterior wings as on the upper side; the colours being less distinct. Margins of the wings entire.

TRIPHÆNA MATERNA.

Plate XIII. fig. 4.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Noctuidæ, *Stephens.*

GENUS. TRIPHÆNA, *Ochs. Treit. Steph.* Phalæna (Noctua), *Linn. Drury.*

TRIPHÆNA MATERNA. Alis anticis grisescentibus aut luteis, fusco irroratis et undulatis, posticis fulvis, maculâ margineque (albo punctato) atris.

SYN. Phalæna (Noctua) Materna, *Linn. Syst. Nat.* 11. 840. 117. *Drury, App. vol.* 2.
Noctua Materna, *Fabr. Ent. Syst.* 111. 2. *p.* 16. *No.* 27. *Gmel. Linn. S. N.* 2533. 117. *Olic. Enc. Méth.* 8. 259. 39.
Noctua hybrida, *Fabr. Ent. Syst.* 593. 11.

HABITAT: Bengal.

Upper Side. Antennæ setaceous. Tongue spiral. Palpi yellow, blue at the tips. Head tinged with blue. Thorax olive. Abdomen yellow. Anterior wings light brown and shining; appearing of several colours according to the position they are held in. Posterior wings yellow, with a round black central spot. Margins black, beginning at the middle of the anterior edges, and ending at the abdominal corners where the margin is narrowest; having eight small white spots thereon, placed on the external edges.

Under Side. Thorax, abdomen, and sides yellowish ash-coloured. Anterior wings yellow; tips brown, and separated from the yellow by a black streak running from the lower corner to the anterior edge. Posterior wings coloured as on the upper side; the black margin being rather fainter. Margins of the wings dentated.

EREBUS FLUCTUOSUS.

Plate XIV. fig. 1.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Noctuidæ, *Steph.*

GENUS. EREBUS, *Latr.* Thysania, *Dalm.* Noctua, *Fabr.*

EREBUS FLUCTUOSUS. Alis fuscis, fasciâ communi pallidâ, marginibus latè nigris internè dentatis, anticis ocello magno auriformi. (Expans. Alar. 3 unc. 1½ lin.)

SYN. Phalæna (Noctua) fluctuosa, *Drury, App. vol.* 2.

HABITAT: Sierra Leone.

Upper Side. Antennæ setaceous. Head and thorax brown. Tongue spiral. Wings dark hair-coloured, or russet brown; divided into two compartments by a clay-coloured line, which beginning at the anterior edges of the anterior near the middle, and crossing them and the posterior, meets at the extremity of the body: the inner compartment being brown, the outward one clay; which is again separated by an irregular waved line, beginning at the tips and ending at the abdominal corners. All the outward part is brown. Two black spots are placed on the anterior wings next the anterior edges, and near the middle.

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Under Side. Palpi distinct, and like bristles at their extremities. Breast, legs, and wings light brown. A row of cream spots, angularly shaped, are placed along the wings; the outward part being furnished with about twenty-eight small cream spots irregularly placed. Margins of the posterior wings dentated, of the anterior entire.

According to Mr. Smeathman this species is easily disturbed during the day. It flies exceedingly rapid, and has a method of striking a leaf or bough at two or three feet distance from the place where it really settles. Whether this be done to break the violence of its motion, and enable it to settle without injury to its body; or for the purpose of deceiving its pursuers, is not easily ascertained; it has, however, the latter, and probably both effects; most of the locusts do this, for they certainly strike some branch with a good deal of violence just before they alight, the motion of which deceives the eyes and baffles the pursuer.

GEOMETRA ARGENTATA.

Plate XIV. fig. 2.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Geometridæ, *Steph.*

GENUS. GEOMETRA, *Auct.* SUBGENUS. ——?

GEOMETRA ARGENTATA. Alis pallidè griseis, anticis fasciis duabus, posticis unicâ flavis, utrinque argenteo-marginatis his ocello marginali obscuro. (Expans. Alar. 1 unc. 9 lin.)

SYN. Phalæna (Geometra) Argentata, *Drury, App. vol.* 2.

HABITAT: Jamaica.

Upper Side. Antennæ filiform. Body grey. Wings pale yellowish grey. A narrow yellow bar rises near the middle of the anterior wings, which, crossing them and the posterior, ends a little below the body on the abdominal edges; another small bar crosses the anterior wings near the shoulders, both of them being verged with silver. A small dark spot, surrounded with silver, is also placed close to the external edges of the posterior wings; and above it is a yellowish patch reaching to the upper corners.

Under Side. Wings pale light-coloured, almost white, immaculate. Margins of the wings entire.

PETASIA? MINISTRA.

Plate XIV. fig. 3.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Nolodontidæ, *Steph.*

GENUS. PETASIA? *Stephens.* Phalæna (Noctua), *Drury.*

PETASIA? MINISTRA. Alis anticis rufescenti-fulvis, strigis quinque transversis, posticis pallidioribus ♀. (Expans. Alar. 2 unc.)

SYN. Phalæna Noctua Ministra, *Drury, App. vol.* 2.
Phalæna Ministra, *Abbot & Smith Ins. Georg. t.* 81. *Oliv. Enc. Méth.* 5. 69. 155.

HABITAT: New York.

Upper Side. Antennæ filiform. Head and thorax reddish brown. Abdomen clay-coloured. Anterior wings brown orange, with five small dark lines crossing from the anterior to the posterior edges. Posterior wings clay-coloured, fringed with orange brown.

Under Side. Tongue indistinct. Breast and legs red brown. Abdomen and posterior wings clay-coloured. Anterior ones brown orange, without any marks or lines thereon. Wings a little dentated; especially in the anterior wings.

The larva of this insect is long, smooth, and shining, of a black colour, with eight longitudinal continuous yellow lines, with the base of the legs and a spot on the neck red. When alarmed it throws up its head and tail into the air. From the structure of the larva it is therefore nearly allied to Ptilophora and Petasia, Steph., and not to the buff tip-moth (Pygæra bucephala). Its food, according to Abbot, consists of the Andromeda mariana, vulgarly called the male hackleberry, which grows round ponds and on the margins of running streams; it eats also several species of walnut and oak. One went into the ground on the 31st of July, and the moth came out the 23rd of August; another went in the 8th of June, and came forth the 3rd of July. They likewise sometimes go into the ground in autumn, and come out in the spring. The whole brood of caterpillars feed together in society. Abbot also states, that when they eat walnut leaves they are always black, with white hairs;* when their food is the oak, they are more yellow.

HYDROCAMPA? NIVALIS.

Plate XIV. fig. 4.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Pyralidæ, *Leach.*

GENUS. HYDROCAMPA? *Latr.* Cataclysta, *Hübn. Steph.* Phalæna (Pyralis), *Drury.*

HYDROCAMPA? NIVALIS. Alis margaritaceo-albis, ciliâ anticarum fuscâ.

SYN. Phalæna (Pyralis) Nivalis, *Drury, App. vol.* 2.

HABITAT: New England.

Upper Side. Antennæ filiform and brown. Head, thorax, abdomen, and wings white. The latter of a fine glossy hue, and immaculate. Cilia of the anterior wings brown.

Under Side. Tongue spiral. All the parts on this side are of the same white glossy colour as on the upper.

LIPARIS? RIVULOSA.

Plate XIV. fig. 5.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Arctiidæ, *Steph.*

GENUS. LIPARIS? *Ochs.* Phalæna (Bombyx), *Drury.*

LIPARIS? RIVULOSA. Alis fuscis, strigis transversis undulatis pallidioribus et obscurioribus, anticis fasciâ latâ centrali alteràque basali badiis. (Expans. Alar. 3 unc.)

SYN. Phalæna (Bombyx) rivulosa, *Drury, App. vol.* 2. *Oliv. Enc. Méth.* 5. 38. 54. (Bombyx r.)

HABITAT: Surinam.

Upper Side. Antennæ pectinated. Head, thorax, abdomen, and wings pale reddish brown, or

* Neither in Abbot's figure, nor in my specimens of this larva, is there any appearance of hair upon the body, and it cannot be supposed that a variation in the nature of the food could have the effect of clothing some specimens with hair whilst the rest are naked.

fawn-coloured. The latter with several indented and waved lines, some being darker and some lighter than the general colour of the wings. On the anterior is a large chocolate patch, situated on the middle of the wings, and joining to the anterior edge; between which and the shoulders is another that is much smaller.

Under Side. Tongue obsolete. Palpi, breast, abdomen, and wings brown, as on the upper side; the latter immaculate, except a dark patch on each wing near the shoulders. Margins of the wings slightly dentated.

NYMPHALIS ERITHONIUS.

Plate XV. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Swains.*

GENUS. NYMPHALIS, *Latr. God.* Papilio (Dan. Festivi), *Linn. Drury.*

NYMPHALIS MEDON. Alis dentatis, supra fuscis; anticis utrinque fasciâ obliquâ luteâ, apice albo; posticis fasciâ violaceo-cœrulescenti, singulis subtùs punctis tribus, (Expans. Alar. 3 unc. 7 lin.)

SYN. Papilio (Nymph.) Erithonius, *Fabr. Ent. Syst.* III. 1. *p.* 82. *No.* 255. *Latr. & God. Enc. Méth.* ix. *p.* 390. *No.* 142. (Nymphalis Er.)
Papilio (Dan. Festivi) Eupalus, *Fabr. Ent. Syst.* III. 1 *p.* 48. *No.* 148.
Papilio Harpalyce, *Cram. pl.* 145. *fig.* D. E.
Papilio (Equ. Achiv.) Medon, *Drury, App. vol.* 2. (Exclus. Syn. *Linn. & Fabr.*)

HABITAT: Sierra Leone.

Upper Side. Antennæ black, lighter at the tips. Head black. Thorax and abdomen dark brown. Anterior wings dark red brown, tipped with white; but next the shoulders of a purplish hue, with a dark yellow streak near the tips, extending obliquely from the anterior towards the external edge. Posterior wings also red brown; but towards the middle and shoulders of a purplish blue, which they reflect more or less according to the position they are held in.

Under Side. Palpi and breast yellow. Anterior wings olive brown, tipped with white; but along the external edges of a hazel colour, and near the shoulders having three round black spots on each. Posterior wings similar to the anterior, being of a brown olive, variegated, and clouded, with three small spots placed near the shoulders, as in the superior ones. All the wings are a little dentated.

There are several African species closely allied to the present insect, which was regarded by Drury as the Medon of Linnæus. I have followed the Encyclopédie Méthodique in rejecting this reference; although it will be seen that the Linnæan description of that insect, "alis supra nigris primoribus fascia lutea apiceque albo; posticis disco cœrulescentibus," does not disagree with the character of this insect.

According to Mr. Smeathman this species was taken at some distance inland upon the continent of Africa; adding, "there are several Papiliones nearly of this colour, that is to say, with the upper sides of the wings having a changeable purple, and the under sides being inclinable to green, sometimes with marks of the most beautiful crimson. The differences between them arise so gradually, that he thinks them varieties of the same species, some, apparently very different, being found coupled together. They are all found congregating in the paths, and in the thick shade of a forest, ten or a dozen in a circle round a little puddle or moist spot, and seem to like the most gloomy places."

HESPERIA IPHIS.

Plate XV. fig. 3, 4.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Hesperiidæ, *Steph.*

GENUS. HESPERIA, *Latr. God.* Papilio (Pleb. Urbic.) *Linn. &c.*

HESPERIA IPHIS. Alis supra viridi-atris; infra aureo-virescentibus venis margineque postico nigris, capite sanguineo. (Expans. Alar. 4 unc.)

SYN. Papilio (Pleb. Urb.) Iphis, *Drury, App. vol.* 2.
Hesperia (Urb.) Jupiter, *Fabr. Ent. Syst.* III. 1. *p.* 336. *No.* 279. *Enc. Méth.* ix. *p.* 733. (Hesperia J.)
Papilio Phidias, *Cram. pl.* 244. A. B.

HABITAT: Senegal, Gambia, Sierra Leone, Anamaboe, and the Bight of Benin, on the Coast of Africa.

Upper Side. Antennæ thickest in the middle. Head scarlet. Thorax and abdomen black. All the wings green brassy-coloured, the nerves black, those parts that surround the body being of a raven black. The tips of the anterior wings orange-coloured.

Under Side. Palpi scarlet and hairy, the extremities being small and black. Breast, legs, sides, and abdomen black. Anus scarlet. Wings of a yellower brassy hue than on the upper side. Superior wings tipped with orange, but next the body greenish black; the same colour occupying the external edges of the posterior wings.

The male differs in having the upper side entirely of a fine raven black without the orange tips; the under side is also darker, and less brassy than the female.

Drury states, that when this insect is at rest it sits with its wings erect; and Mr. Smeathman considers it "very remarkable that this insect, which seems an intermediate species between Papilio and Phalæna, associates with the little assemblages of Nymphalis Erithonius, and is frequently seen sipping water with them."

NYMPHALIS (LIMENITIS) SIBILLA.

Plate XLV. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Swains.*

GENUS. NYMPHALIS, *Latr. God.* Papilio (Nymph. Phal.), *Linn. Drury.* SUBGENUS: Limenitis, *Fabr. Steph.* Naiades, *Hübn.*

NYMPHALIS (LIMENITIS) SIBILLA. Alis subdentatis supra atro-cœruleis; fasciâ maculari albâ; posticis subtus basi cinereo-cœrulescente immaculatis. (Expans. Alar. 1 unc. 9 lin.)

SYN. Papilio Sibilla, *Linn. Syst. Nat.* ii. 781.
N. Camilla, *Enc. Méth.* ix. *p.* 408. *and of the German Lepidopterists.*
Papilio (Nymph.) Sibilla var. *Drury.*

HABITAT: Smyrna *(Drury).*

Upper Side. Antennæ black. Head, thorax, and abdomen black. Between the eyes are four small white spots Wings raven black, tinged with green. Anterior with ten white spots, of different sizes, placed in various parts; four being next the anterior edge, near the middle of the wings, and divided only by the nerves. Posterior with a row of long white spots, placed together, running from the middle of the anterior edges, and ending a little above the abdominal corners, divided by the nerves. A range of small black spots, edged with grey, runs parallel with the external edges of the wings, from the tips to the abdominal corners, where the last spot is encircled with orange.

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Under Side. Palpi, legs, breast, and abdomen grey. Anterior wings, next the body, grey; the remaining parts being dusky olive, with some dark red streaks placed on various parts; the white spots being very distinct on this side. Posterior wings, at the base, light grey; extending almost to the row of white spots, which are seen on this side as well as on the upper. The remaining parts are dusky olive, with two rows of faint dark red spots running along the external edges. A range of small black spots runs parallel with the external edges of all the wings. All the wings are dentated.

There is a diversity of opinion amongst the German and English Lepidopterists, relative to the names of this species and the English White Admiral, to which latter Haworth, Stephens, &c, give the name of Camilla, but which Illiger, Hubner, &c. term Sibilla. I have adopted the former nomenclature, although it will be seen that the figure of Drury, which is the Sibilla of the English nomenclature, exhibits a red spot at the anal angle, which Curtis considers as the most satisfactory mark of distinction between the two species. (Brit. Ent. p. 124.)

PAMPHILA METIS.

Plate XVI. fig. 3, 4.

ORDER: Lepidoptera. SECTION: Diurna, *Latr.* FAMILY: Hesperiidæ, *Steph.*

GENUS. PAMPHILA, *Fabr.* Hesperia p. *Latr. & God.* Papilio (Pleb. rur.), *Linn.*

PAMPHILA METIS. Alis anticis utrinquè posticisque suprà nigro-fuscis, maculis fulvis, plurisque punctiformibus; alis posticis subtùs brunneo-fuscis immaculatis. (Expans. Alar. 1 unc. 1 lin.)

SYN. Papilio (Pleb. rur.) Metis, *Linn. Syst. Nat.* 2. 792. 245. *Fabr. Ent. Syst.* III. 1. *p.* 329. *No.* 249. (Hesperia Th.)
Pap. Metis, *Cramer, pl.* 162. *f.* G.

HABITAT: Cape of Good Hope.

Upper Side. Antennæ brown, yellow beneath. Head hairy. Thorax and abdomen brown; the extremity of the latter yellow. Wings dark brown. Anterior having four orange spots, two of which next the body are double. Posterior with a row of six orange marginal, and two discoidal spots.

Under Side. Tongue black. Palpi orange. Legs, breast, and abdomen brown. Wings coloured as on the upper side. The anterior having five orange spots, that next the body being long and double. The posterior immaculate. Margins of the wings entire.

NYMPHALIS OPIS, VAR. γ.

Plate XVI. fig. 5, 6.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Sw.*

GENUS. NYMPHALIS, *Latr. God.* Papilio (Nymphalis), *Linn.*

NYMPHALIS OPIS. Alis supra fuscis, fasciâ communi caracteribusque ochraceis; anticis strigâ punctorum alborum. (Expans. Alar. 2 unc. 6 lin.)

SYN. Papilio (Nymph. Phal.) Crithea, *Drury, App. vol.* 2. *Fabr. Ent. Syst.* III. 1. *p.* 132. *No.* 406. *Cramer pl.* 16. *f.* 5. 6.
Nymphalis Opis, *Enc. Méth.* ix. *p.* 381. *No.* 104. *Fabr. Ent. Syst.* III. 1. *p.* 131. *No.* 405.

HABITAT: Sierra Leone.

Upper Side. Antennæ brown. Thorax and abdomen dark brown, with four yellowish lines crossing them. Anterior wings dark purplish brown, having many marks and spots of different shapes and sizes placed thereon of a deeper shade; four being round, and gradually diminishing in size, and placed along the external edges; two others also, that are small, are situated at the shoulders. Posterior wings dark brown; the upper parts along the anterior edges dull yellow, reaching almost to the thorax. Two indented ash-coloured lines cross these wings; one beginning at the upper corners running circularly, and meeting below the body; the other running in a straight line above the first, and meeting a little above the extremity of it.

Under Side. Palpi, breast, and abdomen ash-coloured. Legs yellowish. Anterior wings dull yellow, but next the tips brown, where there are some greyish spots and marks; in the centre are two small round spots, almost black; and along the anterior edges, next the shoulders, are some other brown spots variously and irregularly shaped. Posterior wings entirely dull yellow, immaculate; the margins of these being a little dentated, the anterior ones entire.

The authors of the Encyclopédie Méthodique consider the insect here figured, and that represented in Pl. XVII. fig. 5, 6, as varieties of the same species. Mr. Smeathman states, that this species is found in the same gloomy recesses, and often congregated together in the same manner as Nymphalis Erithonius, figured in Pl. XV.

BIBLIS ILITHYIA.

Plate XVII. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Swains.*

GENUS. BIBLIS, *Fabricius, Latr. & God.* Papilio (Nymph. Phal.), *Drury.*

BIBLIS ILITHYIA. Alis rotundatis denticulatis fulvis fasciâ baseos margineque fulvo maculato nigris; posticis subtus fasciis duabus albis transversis nigro-punctatis. (Expans. Alar. 2 unc. 3 lin.)

SYN. Papilio (Nymph. Phal.) Ilithyia, *Drury, App. vol.* 2. *Fabricius Ent. Syst.* III. 1. *p.* 131. *No.* 403. *Cramer, pl.* 213. *fig.* A. B. ♂.—214. C. D. ♀.
Pap. Polinice, *Cramer, pl.* 375. *fig.* G. H. (var.)
Biblis Ilithyia, *Enc. Méth.* ix. *p.* 327.

HABITAT: Senegal, and Coast of Africa.

Upper Side. Antennæ brown. Thorax and abdomen dark brown. Wings fine deep or brown orange. The anterior deeply verged with black along the external and anterior edges; the former having a row of oblong orange spots running parallel with them, which is continued, together with the deep black margin, along the posterior wings to the abdominal corners; the spots being larger along these wings than on the anterior. A black, irregular, and indented line rises near the middle of the anterior wings, and ends at the posterior edges.

Under Side. Palpi and breast orange. Legs brown. Anterior wings orange; the external edges with a small, narrow, white indented margin. Four small white spots are placed near the tips, that next the anterior edge being least; and along the same edge are several other long black spots, margined with white. Posterior wings with a row of white crescents placed along the external edges; over this is an orange bar, next is a row of cream-coloured spots almost round, being seven in number, with a row of very small ones above them, consisting of fourteen; above this is an orange bar, with a cream one

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over it, being divided by a narrow black line. Above these are two other bars; the first orange, the next cream colour, separated by long narrow black spots; the colour of these wings, next the body, being orange. All the wings are dentated.

PIERIS CALYPSO.

Plate XVII. fig. 3, 4.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Papilionidæ, *Leach.*

GENUS. PIERIS, *Schrank. Latr. God.* Papilio (Dan. Cand.), *Linn. Drury.*

PIERIS CALYPSO. Alis rotundatis subintegris albis extimo nigro; posticis subtus flavis seu nitenti-grisescentibus, limbo punctorum nigrorum serie duplici, maculis flavis interjectis. (Expans. Alar. 2 unc. 6 lin.)

SYN. Papilio (Dan. Cand.) Calypso, *Drury, App. vol.* 2. *Fabr. Ent. Syst.* III. 1. *p.* 191. *No.* 592. *Cramer, pl.* 154. C. D. (♂.) E. F. (♀) *Enc. Méthod.* ix. *p.* 130. (Pieris C.) *Boisduval Hist. Nat. Lep.* 1. 504.

HABITAT: Sierra Leone.

Upper Side. Antennæ brown. Thorax and abdomen nearly black. Wings white; margined externally with dusky black. The anterior edges of the anterior ones are also margined with black, from the middle of which runs a black line to a round spot placed on the middle of the wings; the mixture of the colours on these wings somewhat resembles the profile of a human face. Posterior wings having a round spot placed near the middle of each, with several fainter ones along the external edges, and two stronger ones near the upper corners.

Under Side. Palpi and legs black. Breast ash-coloured. Anterior wings as on the upper side; three oblong yellow spots being placed at the tips, and four round white ones along the external edges. Posterior wings much tinged with yellow, having a yellow margin running from the abdominal to the upper corners along the external edges, appearing like crescents placed on a row; above this is a row of seven square black spots placed circularly with the margin, and in the centre is a conspicuous round black spot.

Mr. Smeathman states that this insect loves chiefly to sport in the sunshine. It is therefore very difficult to catch at that time of the day when the sun is powerful; but towards sunset it is more easily caught, when it congregates in great numbers, in particular spots most sheltered from the breeze.

NYMPHALIS LAURE.

Plate XVIII. fig. 5, 6.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Swains.*

GENUS. Nymphalis, *Latr. God.* Papilio (Nymph. Phal.), *Drury.*

NYMPHALIS LAURE. Alis suprà nigris; fasciâ mediâ anticarum fulvâ interruptâ; posticarum albâ, et a latere cœruleo nitidâ. (Expans. Alar. 2 unc. 6 lin.)

SYN. Papilio (Nymph. Phal.) Laure, *Drury, App. vol.* 2.
Papilio (Nymph.) Laura, *Fabr. Ent. Syst.* III. 1. *p.* 134. *No.* 415.
Nymphalis Laure, *Enc. Méth.* ix. *p.* 376.

HABITAT: The Bay of Honduras, *Drury.*

Upper Side. Antennæ brown. Thorax and abdomen brown. Anterior wings fine ochre brown; having two faint, dark, indented lines running along the external edges. An oblong yellow spot is placed on the anterior margins near the tips. Three others, one being small, are situated near the middle of the wings; beginning at the anterior edges and reaching almost to the posterior, where it becomes white. Posterior wings ochre brown; but when held in a certain position exhibiting a fine purplish blue. A white bar crosses these wings obliquely from the middle of the anterior edges, and meets a little below the body. Two indented black lines are placed on the external edges, running from the upper to the abdominal corners, where are placed two small crescent-like blue spots or lines, one double, the other single.

Under Side. Palpi, breast, and legs white. Anterior wings having some short black irregular lines placed cross-ways, and some brown orange marks near the shoulders. Three small triangular black spots are placed at a little distance from the external edges, near the lower corners; above which is a brownish patch resembling polished metal. Posterior wings entirely of the colour of polished metal, except the external edges which are ash colour; and a white bar running from the middle of the anterior edges to the abdominal corners. All the wings are deeply angulated.

Latreille and Godart question whether this be not the female of Nymphalis Laurentia, of which they had only seen the males.

NYMPHALIS CADMA.

Plate XVIII. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Leach.*

GENUS. NYMPHALIS, *Latr. God.* Papilio (Nymph. Phal.), *Drury.*

NYMPHALIS CADMA. Alis denticulatis luteis, anticis utrinque areâ apicis nigrâ, maculis duabus flavescentibus, posticis subtùs ocellis duobus cœruleis. (Expans. Alar. 2 unc.)

SYN. Papilio (Nymph. Gemm.) Cadma, *Drury, App. vol.* 2. *Fabricius Ent. Syst.* III. 1. *p.* 241. *No.* 751. (Papilio Sat. C.) *Enc. Méth.* ix. *p.* 421. (Nymphalis C.)

HABITAT: Jamaica.

Upper Side. Antennæ black. Head, thorax, and abdomen dark brown. Wings tawny yellow. The anterior having the extreme parts, near the tips, black; with two yellowish spots thereon, joining the anterior edges; also a round black spot situated at the lower corners on the posterior edges. Posterior wings immaculate, except a black streak placed on the anterior edges next the upper corners.

Under Side. Tongue black. Breast, legs, and abdomen ash-coloured. The superior wings marked and coloured as on the upper side, but less distinctly. Posterior wings tawny orange, having a broad ash-coloured bar crossing them from the anterior to the abdominal edges. On this bar are placed two eyes, with double pupils; the lower one being of a fine blue with a yellow iris; the upper one, next the anterior edges, blue and black, with a brown iris. Margins of the wings dentated.

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VANESSA TEREA.

Plate XVIII. fig. 3, 4.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Swains.*

GENUS. VANESSA, *Fabr. Latr. God. Steph. &c.* Papilio (Nymph. Gemm.), *Drury, &c.*

VANESSA TEREA. Alis dentatis supra fuscis, fasciâ communi fulvâ lineâ nigrâ divisâ; anticis subfalcatis punctis apicalibus albis, posticis intus subcaudatis, ocello anali gemino. (Expans. Alar. 2 unc. 3 lin.)

SYN. Papilio (Nymph. Gemm.) Terea, *Drury, App. vol.* 1, 2. *Fab. Ent. Syst.* 111. 1. *p.* 92. *No.* 288. *Cramer, pl.* 138. *fig.* E. F. *Encyl. Méth.* ix. *p.* 314. (Vanessa T.)

HABITAT: Sierra Leone.

Upper Side. Antennæ black. Thorax and abdomen greenish brown. The shoulders of all the wings surrounded by a broad patch of a yellowish brown; joining to this is a yellow clay-coloured bar, rising near the anterior edges. The remaining part of the wings is occupied by a dusky black border, situated along the external edges; having some very small white spots thereon, whereof four are placed near the tips.

Under Side. Palpi, legs, breast, and sides pale clay-coloured. Anterior wings pale clay-coloured; having three irregular indented bars crossing them, from the anterior to the posterior edges. Along the external edges is a dark cloud, whereon are four or five exceeding small white eyes, and a small white spot like an arrow's point near the tips. Posterior wings pale clay-coloured, clouded along the external edges, where there are three exceeding small white eyes. A small reddish line crosses these wings from the abdominal corners to the middle of the anterior edges. All the wings are dentated; the anterior being a little angulated.

This butterfly, according to Mr. Smeathman, delights to sport in the sunshine, and is frequently found in company with Pieris Calypso about cultivated spots, as old rice plantations and cassava grounds.

NYMPHALIS OPIS.

Plate XVII. fig. 5, 6.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Sw.*

GENUS. NYMPHALIS, *Latr. God.* Papilio (Nymphalis), *Linn.*

NYMPHALIS OPIS. Alis supra fuscis, fasciâ communi caracteribusque ochraceis; anticis strigâ punctorum alborum. (Expans. Alar. 2 unc. 6 lin.)

SYN. Papilio (Nymph. Phal.) Opis. *Drury, App. vol.* 2. *Cramer, pl.* 138. *fig.* A. B. *Encycl. Méth.* ix. *p.* 381. *No.* 104. (Nymphalis O.)

HABITAT: Sierra Leone.

Upper Side. Antennæ brown. Head, thorax, and abdomen brown. Wings dark brown, or chocolate colour, formed into divisions by lines of a yellowish colour crossing and intersecting them in various directions. A yellow bar rises on the anterior wings, near the middle, and crossing them and the posterior, meets at the extremity of the body. Close to where the bar rises on the anterior wings are six very small white spots, placed between the nerves, reaching to the anterior edges.

Under Side. Palpi, breast, and sides greyish brown. Anterior wings greyish, clouded with red brown, particularly at the tips; on the middle of the external edges is a patch of yellow, and on the

middle of the posterior edges is a patch of a pale clay colour, with six small white spots. Posterior wings having a third part, next the shoulders, greyish and dark brown; the remainder pale clay, with a reddish brown patch next the upper corners; from whence runs an undulated brown line to the abdominal edges at the extremity of the body, and another fainter along the external edges. The wings are dentated.

NYMPHALIS CÆNIS ♂.

Plate XIX. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Swains.*

GENUS. NYMPHALIS, *Schrank. Latr. God. Boisd.* Papilio (Dan. Cand.), *Linn, &c.*

NYMPHALIS CÆNIS. Alis subrotundatis albis, margine postico et ante hunc marginem lineâ angulatâ maculisque nigris; subtus omnibus strigâ communi brunneâ. (Expans. Alar. 2 unc. 9 lin.)

SYN. Papilio (Dan. Cand.) Cænis, *Drury, App. vol.* 2. *Encycl. Méth.* ix. *p.* 142. *No.* 85. (Pieris C.)
Nymphalis amphiceda, *Fabr. Ent. Syst.* III. 1. 113. *No.* 348. ♀. *Cramer, pl.* 146. D E. *Enc. Méth.* ix. 384. 113.

HABITAT: Calabar, Africa.

Upper Side. Antennæ black. Eyes red brown. Thorax greenish. Abdomen sooty brown. Wings white, having a narrow border running along the external edges of a soot brown; over which is an indented, angulated, black line, appearing in some places like two points of arrows united. Along the anterior edges of the anterior wings also runs an exceeding narrow black line.

Under Side. Palpi, breast, sides, and legs white. Wings white; being divided as it were by a brown line, which, beginning near the middle of the anterior edges of the anterior wings, and crossing them and the posterior, meets near the abdominal corners. The inner part of the division having many brown lines thereon, shaped like angles, circles, &c. A faint angulated brown line runs along the external edges of all the wings; whereon are some short faint brown streaks placed on the upper angles. The wings are a little dentated.

NYMPHALIS MELICERTA.

Plate XIX. fig. 3, 4.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Swains.*

GENUS. NYMPHALIS, *Latr. God.* Papilio (Nymph. Phal.), *Linn. Drury.*

NYMPHALIS MELICERTA. Alis denticulatis utrinque fusco-nigris, fasciâ latâ strigisque albis, anticarum basi maculâ cuneiformi albâ. (Expans. Alar. 2 unc. 3 lin.)

SYN. Papilio (Nymph. Phal.) Melicerta, *Drury, App. vol.* 2. *Herbst. Pap. tab.* 238. *f.* 5. 6.
Nymphalis Melinoe, *Enc. Méth.* ix. *p.* 432. *No.* 261.
Papilio Blandina, *Cramer, pl.* 237. *fig.* E. F.

HABITAT: Sierra Leone.

Upper Side. Antennæ black. Thorax and abdomen dark brown. Anterior wings sooty brown, with two white narrow lines running along the external edges. From the shoulders runs a long white streak to the middle of the wing, and a small one at the end of it; where are also six other white streaks placed transversely, one of which is very small. Posterior wings sooty brown, having the two narrow lines continued along the external edges from the anterior wings. A broad straight white bar crosses these

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wings, being a little indented on the lower side; beginning at the anterior edges near the upper corners, and meeting at the body on the abdominal edges.

Under Side. Palpi, breast, sides, and legs ash-coloured; all the white parts appearing broader and larger on this side than on the upper; the lines along the external edges are broader, and the dark parts of the wings have a few whitish marks on them that are not seen on the other side. The wings are a little dentated.

The Melicerta of Fabricius and the Encyclopédie Méthodique appears to be a distinct species, having the base of the anterior wings spotted with white. I have restored Drury's name to the present insect, as it has the priority.

ANTHOCARIS ARETHUSA.

Plate XIX. fig. 5, 6.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Papilionidæ, *Leach.*

GENUS. ANTHOCARIS, *Boisduval.* Pieris, *Latr. & God.* Papilio (Dan. Cand.) *Drury.*

ANTHOCARIS ARETHUSA. Alis rotundatis integerrimis albidis; supra anticis apice maculâque, posticis strigâ incurvâ punctisque marginalibus fuscis; anticarum subtus apice fulvo. (Expans. Alar. 1 unc. 10 lin.)

SYN. Papilio (Dan. Cand.) Arethusa, *Drury, Append. vol.* 2. *Boisduval Hist. Nat. Lepidopt.* 1. *p.* 582. (Anthocaris A.)
Pieris Amytis, *Enc. Méth.* ix. *p.* 123. (Exclus Syn. *Cramer.*)
Pieris Evippe, ♀. *Enc. Méth. Sup. p.* 805.

HABITAT: Sierra Leone.

Upper Side. Antennæ brown. Head, thorax, and abdomen dark brown. Anterior wings white, brown at the base; having a small black round spot near the centre of each; the tips are dark brown, occupying a third of the wings; near the middle of the posterior edges is a brown patch, and a small round spot at the lower corners. Posterior wings white, but clouded a little near the body. Along the external edges are placed five brown spots, that next the upper corners being double: also a brown line, like an obtuse angle, begins on the anterior edges, and ends just below the body.

Under Side. Palpi, breast, and legs ash-coloured. Anterior wings white, whereof the tips are orange-coloured, verged with yellow; on each wing are two black spots, one being very small and answering to that on the upper side; the other larger, and placed near the posterior edges. Posterior wings pale yellow, with an exceeding small spot, surrounded with orange colour, placed near the middle of each; the brown obtuse angle appears faintly on this side, but of an orange colour. All the wings are entire.

CALLIMORPHA? SANGUIFLUA.

Plate XX. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Arctiidæ, *Stephens.*

GENUS. CALLIMORPHA? *Latr.* SUBGENUS: —— ? Phalæna (—— ?), *Drury.*

CALLIMORPHA? SANGUIFLUA. Alis nigris, anticis albo et flavo punctatis nervisque posticis sanguineis; posticis nigris margine cœruleo 4 albo-punctatis. (Expans. Alar. 4 unc. 1½ lin.)

SYN. Phalæna (——) Sanguiflua, *Drury, App. vol.* 2.

HABITAT: Surinam.

Upper Side. The head is wanting. Thorax blueish black. Abdomen very dark blue, with five small white spots on each side. Anterior wings black, with a number of small spots dispersed all over them, whereof five next the body are yellow, the rest white. The nerves, from the middle to the extremities of the wings of a dark red, or crimson colour. Posterior wings at the base of a blueish black, but along the external parts deep mazarine blue; whereon are placed twelve faintish white spots.

Under Side. Nearly corresponds with the upper, except in the number of spots, which are more numerous; some being surrounded with blue, those next the external edges being double. The crimson colour on the ribs of the superior wings is wanting on this side. All the wings are entire.

Notwithstanding the imperfect state of this insect, it is evident that it is nearly allied to many other species figured by Drury (including those represented in Pl. 11. fig. 4., Pl. 6. fig. 4., Pl. 11. fig. 3.), and which appear to form the connecting links between the aberrant Sphingidæ (Zygænidæ) and the Arctiidæ. The singular neuration of the upper wings of this insect is nearly similar to that of a remarkable Indian species, which I have described and figured in Mr. Royle's work on the Natural History of the Himalaya.

SPILOSOMA EGLE.

Plate XX. fig. 3.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Arctiidæ, *Steph.*

GENUS. SPILOSOMA, *Steph.* Arctia, *Latr.* Eyprepia p. *Ochs.* Phalæna (Noctua), *Drury.*

SPILOSOMA EGLE. Alis griseis immaculatis; abdomine luteo, maculis dorsalibus nigris. (Expans. Alar. 1 unc. 10 lin.)

SYN. Phalæna (Bombyx) Egle, *Drury, App. vol.* 2.

HABITAT: New York.

Upper Side. Antennæ grey, slightly pectinated. Head grey. Neck cream-coloured. Thorax grey. Abdomen yellow, with seven small black spots placed along the middle. Wings grey ash-coloured, immaculate.

Under Side. Palpi small. Tongue spiral. Abdomen pale yellow. Wings grey-coloured on this side, immaculate. Margins of the wings entire.

NOCTUA CHERA.

Plate XX. fig. 4.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Noctuidæ, *Steph.*

GENUS. NOCTUA SUBGENUS. ——

NOCTUA CHERA. Alis griseo-badiis, anticis fasciâ irregulari longitudinali (cum marginibus externis et posticis) parallelâ fusca. (Expans. Alar. 2 unc. 5 lin.)

SYN. Phalæna (Noctua) Chera, *Drury, App. vol.* 2.

HABITAT: Surinam.

Upper Side. Antennæ setaceous. Head, thorax, and abdomen greyish russet. Wings coloured nearly as the preceding insect. The anterior having a dark brown irregular line running near the posterior and external edges to the anterior near the tips. Posterior wings immaculate.

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Under Side. All the parts on this side are of the same colour as the upper, without any marks whatever on them. Margins of the wings entire.

I have placed this insect in the family Noctuidæ with doubt, as it seems to have some resemblance with Galleria Mellonella.

NYMPHALIS JACINTHA.

Plate XXI. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Swains.*

GENUS. NYMPHALIS, *Latr. God.* Papilio (Nymphalis Phal.), *Drury.*

NYMPHALIS JACINTHA. Alis dentatis fuscis, anticis maculis albo-cœruleis omnibusque strigâ punctorum, fasciâ intùs crenatâ, lunulisque apicalibus albidis. (Expans. Alar. 4 unc. 6 lin.)

SYN. Papilio (Nymph. Phal.) Jacintha, *Drury, App. vol.* 2. *Fabr. Ent. Syst.* III. 1. *p.* 111. *No.* 342. ♀ ?
Papilio N. Liria, *Fabr. Ent. Syst.* III. 1. *p.* 126. 385. ♂ ? *Enc. Méth.* ix. *p.* 395. (Nymphalis Liria).
Papilio Perimale, *Cramer, pl.* 65. *fig.* C. D. *pl.* 67. *fig.* B.

HABITAT: Bombay *(Drury).*

Upper Side. Antennæ black; having two small white spots placed at the base, and three others behind them. Thorax and abdomen blackish brown. Anterior wings, at the base, very dark brown, tinctured with liver colour, but at the external edges lighter, and of an orange tinge; having six small white spots placed parallel with the edge, but at a small distance from it. Near the middle of these wings are four small blue spots, when the insect is held in a particular direction. Posterior wings darkest at the base, but the other parts are of an olive brown; the external edges are fringed with white, having a row of cream-coloured crescents above, and another row of cream spots above that, placed two and two, with seven small white spots placed above the whole. All the wings are dentated.

Under Side. Legs brown. Thighs white. Breast and abdomen whitish. Wings brown olive, darkest next the body, with the same cream-coloured spots as on the upper side, but a little fainter.

NYMPHALIS PERSEIS.

Plate XXI. fig. 3, 4.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Nymphalidæ, *Swains.*

GENUS. NYMPHALIS, *Latr. God.* Papilio (Nymphalis Phal.), *Drury.*

NYMPHALIS PERSEIS. Alis dentatis, utrinque nigris disco communi testaceo; anticis maculis duabus fasciâque, posticis punctis marginalibus ochraceis. (Expans. Alar. 3 unc. 3 lin.)

SYN. Papilio (Nymphalis Phal.) Perseis, *Drury, App. vol.* 2. *Herbst. tab.* 137. *fig.* 5. 6.
Papilio (Nymph.) Persea, *Fabr. Ent. Syst.* III. 1. *p.* 137. *No.* 423. *Enc. Méth.* ix. *p.* 391.

HABITAT: Sierra Leone.

Upper Side. Antennæ black. Thorax and abdomen black, spotted with white. Anterior wings black, the tips edged with white; two pale lemon-coloured spots are situated in the centre of the wings, one being long, the other round; between which and the tips is a long lemon streak, extending from the anterior almost to the external edges; a large patch of a dull red is also placed on the hinder part of the wings, extending along the posterior edges from the shoulders almost to the lower corners. Posterior

wings dull red-coloured, bordered with black, whereon are seven small white spots placed along the external edges, and reaching from the upper to the abdominal corners. All the wings are dentated.

Under Side. Palpi yellow. Breast white. Legs brown. Thighs white. Anterior wings marked as on the upper side, but the colours are much duller. Posterior wings dirty red, bordered with black, whereon are eight white spots, larger than those on the upper side; the colours of the whole being much duller and fainter than on that side.

ALCIS SCOLOPACEA.

Plate XXII. fig. 1.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Geometridæ, *Steph.*

GENUS. ALCIS, *Curtis.* Boarmia, *Treit.* Phalæna (Noctua), *Drury.*

ALCIS SCOLOPACEA. Alis dentatis griseis, fusco atomosis, strigisque dentatis et undulatis communibus albidis et fuscis. (Expans. Alar. 3 unc. 5 lin.)

SYN. Phalæna (Noctua) Scolopacea, *Drury, App. vol.* 2.

HABITAT: Jamaica.

Upper Side. Antennæ filiform. Thorax, abdomen, and wings brownish grey; the latter varied with dark indented brown streaks and lines, contrasted with white and ash colour, crossing them from the anterior to the posterior and abdominal edges.

Under Side. Legs, sides, abdomen, and wings yellow wainscot-coloured. About half the anterior ones, from the tips towards the shoulders, are marked with faint dark brown lines and streaks. Posterior wings having a faintish dark brown cloud, situated near the upper corners. All the wings are deeply dentated.

CALLIMORPHA? MARGINATA.

Plate XXII. fig. 2.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Arctiidæ, *Steph.*

GENUS. CALLIMORPHA? *Latr.* Phalæna (Bombyx), *Drury.*

CALLIMORPHA? MARGINATA. Alis anticis fusco-nigris, margine antico baseos luteo, posticis atris basi maculâ discoidali, punctisque marginalibus, cœrulescenti albis. (Expans. Alar. 2 unc. 5 lin.)

SYN. Phalæna (Bombyx) marginata, *Drury, App. vol.* 2.

HABITAT: Jamaica.

Upper Side. Antennæ pectinated. Head black. Neck yellow. Tongue distinct. Thorax and abdomen black; the latter having two rows of grey spots placed along the upper side of it, and reaching towards the anus, which is yellow. Anterior wings deep black, the anterior edges next the shoulders being yellow. Posterior wings sooty black, with a whitish cloud next the shoulders, and a white spot near the centre of each; a row of whitish spots are also placed along the external edges, which become fainter as they approach the upper corners.

Under Side. Breast, sides, legs, and abdomen black. All the wings are the same; the anterior ones being edged with yellow next the shoulders, and two faint grey spots near the middle; a small whitish streak is also placed on the posterior ones, next the abdominal edges, about a quarter of an inch from the shoulders, where is a small yellow spot on each wing. Margins of the wings entire.

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VENILIA? SOSPETA.

Plate XXII. fig. 3.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Geometridæ, *Steph.*

GENUS. VENILIA? *Duponchel, Stephens.* Macaria p., *Curtis.*

VENILIA? SOSPETA. Alis flavis; anticis punctis duobus parvis discoidalibus maculisque tribus marginalibus; posticis maculâ unicâ versus angulum ani, brunneis. (Expans. Alar. 2 unc. 5 lin.)

SYN. Phalæna (Noctua) Sospeta, *Drury, App. vol.* 2.

HABITAT: Jamaica.

Upper Side. Antennæ filiform. Head pale yellow. Eyes dark brown. Tongue spiral. Thorax, abdomen, and wings pale yellow. On the posterior edges of the anterior wings are placed two faint brown streaks; one, which is smallest, being about a quarter of an inch from the shoulders, the other the same distance from the lower corners; about the same distance from the tips, on the anterior edges, is placed another very small one. Posterior wings having likewise two of these faint spots, one on the anterior, the other on the abdominal edges.

Under Side. Sides, breast, and abdomen pale yellow. Legs brown and yellow. Wings pale yellow, with the same spots and marks as on the upper side, but more distinct. The wings are a little angulated.

EREBUS? OPIGENA.

Plate XXII. fig. 4.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Noctuidæ, *Steph.*

GENUS. EREBUS? *Latr.* Phalæna (Noctua), *Drury.*

EREBUS? OPIGENA. Alis angulatis badio-fuscis, strigis nonnullis undulatis et dentatis communibus obscurioribus. (Expans. Alar. 3 unc. 6 lin.)

SYN. Phalæna (Noctua) Opigena, *Drury, App. vol.* 2.

HABITAT: Jamaica.

Upper Side. Antennæ filiform. Head dark brown. Neck ash colour. Palpi long and greyish, the extremities being black. Tongue spiral. Thorax, abdomen, and wings dark russet or grey brown; the latter having some faint dark indented lines crossing the middle of them, from the anterior to the posterior and abdominal edges. The tips of the anterior wings terminate in an obtuse angle.

Under Side. Breast, sides, abdomen, legs, and wings very dark brown. A dark narrow line begins at the anterior edge of the superior wings, about a quarter of an inch from the tips, and crossing them and the posterior ones ends at the abdominal edges, just below the body; dividing each wing into two compartments, that above the line being a degree darker than that below it; in the centre of each of these divisions is placed a faint black spot, and along the external edges are several of a smaller size, and equally faint. Margins of the wings entire.

URANIA RHIPHEUS.

Plate XXIII. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Crepuscularia? FAMILY: Uraniidæ.

GENUS. URANIA, *Fabr.* (Syst. Gloss.) *Latr.* Cydimon, *Dalm.* (Prodr. Mon. Castniæ.) Leilus & Rhipheus, *Swainson Zool. Illustr.*

URANIA RHIPHEUS. Alis nigris, anticis utrinque lineolis transversis fasciàque mediâ bifidâ aureo viridibus, posticis areâ anali cupreâ violaceo micanti nigroque maculatâ. (Expans. Alar. 4 unc. 9 lin.)

SYN. Papilio (Eq. Troj.) Rhipheus, *Drury, App. vol.* 2. *Esper. Pap. Exot. t.* 21. *f.* 1. 2.
Rhipheus dasycephalus, *Swainson Zool. Illust. N. Ser. pl.* 131.

HABITAT: China *(Drury).* Bengal *(Cramer).* Coromandel *(Fabricius).* Madagascar *(Enc. Méth.).*

Upper Side. "The antennæ are black, and knobbed at their extremities." Eyes dark brown. Thorax and abdomen black. The ground of the anterior wings is a lovely deep green, marked or striped all over with irregular streaks of a deep black, almost all of which run in a direction from the anterior to the posterior edges. Posterior wings, next the body, black; but towards the anterior edges are of a fine light blue green, clouded with black. The other parts, next the abdominal and external edges, are of a curious, deep, blood-red, shining with gold, and spotted with black.

Under Side. Palpi grey. Breast and abdomen ash-coloured. Wings light sea-green, clouded or marked as on the upper side with black. Posterior wings, next the body, of a most brilliant golden green, with small spots of black, which green softens into a fine purple, from that into a crimson, then into a blood-red, and lastly to an orange; which colours occupy the greater part of these wings: that part which lies next the upper corners being of a fine blue green, clouded with black; all the colours on this side have a rich glow of gold, and appear changeable, according to the position in which the light strikes on them; from the abdominal corner runs a narrow black border along the external edge, the width of three membranes, stopping at the angle, and communicating with a large black spot situated near the abdominal edge. "The whole exhibiting the most beautiful colours I ever saw united in one insect."

The splendid insect, from which these figures were taken, has been considered by most Lepidopterists to have been in a mutilated and mended state; having the head, concealed palpi, and clavate antennæ of a true Papilio, and the posterior wings nearly truncated at the lower part. These authors have supposed that the insect was a specimen of the Papilio Rhipheus of Cramer (pl. 385. fig. A. B. Leilus orientalis, Swainson Zool. Illustr. N. Ser. pl. 130.), in which the head and antennæ are similar to those of Nyctalemon Orontes, figured in the first volume of this work, and the posterior wings are terminated by three tails. Mr. Swainson has however adopted a different opinion, figuring Drury's insect under the name of Rhipheus Dasycephalus, and Cramer's under that of Leilus Orientalis; considering that this view of the subject "will clear up one of the most intricate and perplexing questions that has hitherto impeded the natural arrangement of the Linnæan Papiliones and even the entire Lepidoptera." Drury's insect exhibiting the nervures of Urania, and the head, &c. of Papilio, is thus considered as establishing as close an affinity as can possibly be imagined between Papilio and Leilus (i. e. the Rhipheus of Cramer). It is true that there are many Lepidopterous insects which, on a

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casual glance, appear identical, but which belong to distinct groups, especially distinguished by the neuration of their wings, but when we consider the almost perfect identity, in the very peculiar markings and colours, of these two supposed distinct insects, the identity in the nerves of their wings;* the slight scruple which the old collectors had in patching up their insects, and the truncation of the hind wings in Drury's figure, which may be exactly imitated by placing a slip of paper over the tails of perfect tailed specimens of Rhipheus, I think we are authorised in rejecting, without hesitation, the views of Mr. Swainson.

That this group of insects is one of the most interesting amongst the Lepidoptera, and at the same time exceedingly difficult, with respect to its natural relations, cannot be denied. Modern authors, Mr. Swainson observes, have been unfortunate in their location of this group, of course alluding to its being placed by Latrielle in the family Hesperiidæ. Mr. Swainson, however, is not less unfortunate in his introduction of it into the family Papilionidæ, with which the structure of the fore legs is said peculiarly to rank it. This character, nevertheless, together with its day-flying habits and brilliant colours, are the only points in which an affinity can be traced between the Papilionidæ and Uraniidæ. But the structure of the hind legs (having spurs in the middle, as well as at the tips of the tibiæ), and of the nerves of the wings, antennæ, and palpi, all exhibit a very slight degree of relationship with Papilio. Mr. Swainson has, indeed, endeavoured to make the affinity more evident by introducing Papilio Curius, Fabr. as a subgenus (Leptocircus) in the genus Leilus (or Urania), but the relationship between these is of the slightest and most unsatisfactory kind. Mr. Newman has suggested another view of the affinities of this group. In his sketch of the circular distribution of the Lepidoptera,† he has introduced into the Butterfly circle, the genera Coronis and Urania, the last forming the connecting link with the Geometridæ, by Leach's genus Ourapteryx, or the Swallow-tail Moth. The whole structure of the latter insect indicates, however, most clearly that the relation is but an analogical one. Had, indeed, the observations of M. Sganzin,‡ relative to the transformations of Urania Rhipheus been confirmed, this would certainly have been its more appropriate locality, its caterpillar being said by him to be a semi-looper, and its chrysalis to be naked, suspended by the tail, and girt round the centre. But the elaborate memoir of Mr. MacLeay,§ upon the habits and changes of Urania Fernandinæ, prove most clearly that the larva closely resembles that of Agarista;‖ and that the pupa, as in that genus, is inclosed in a cocoon. Now this latter character exists in some species of Hesperia. In these, however, the chrysalis is still attached by its tail. Mr. MacLeay does not mention whether such is the case in Urania; but since his return from Cuba he has had the kindness to shew me the cocoon, and to inform me that the chrysalis is loose. This character,

* Mr. Swainson's figure of Leilus orientalis is incorrect in this respect.

† Sphinx Vespiformis, an Essay, table opposite p. 31.

‡ Anomalie du Genre Urania par M. Boisduval. Ann. Soc. Ent. France, 1834, p. 248.

§ Trans. Zool. Soc. Lond. vol. i.

‖ Figured by Lewin in his Lepidopt. of New Holland, and republished by Guérin Icon. Règne. An. Ins. pl. 83. fig. 2.

therefore, with the entire structure of the imago, removes it from the Diurnal Lepidoptera, and associates it most satisfactorily with the Hesperi-sphinges of Latrielle, especially Agarista and Coronis, which last is very near Urania Lunus. Thus the situation proposed for these insects by Latreille, between Hesperia and Agarista, &c. is found to be most fortunate; Mr. Swainson himself admitting a relationship with the Hesperiidæ, by calling them the "Hesperian" type of the Papilionidæ. They also appear to have some relation with Erebus. The original specimen here figured is stated by Mr. Drury to have been in the possession of Captain May, of Hammersmith, when the drawing was made. It is now in all probability destroyed, and cannot be traced.

THECLA PAN.

Plate XXIII. fig. 3, 4.

ORDER: Lepidoptera. SECTION: Diurna. FAMILY: Lycænidæ, *Leach.*

GENUS. THECLA, *Fabr.* (Syst. Gloss.) Polyommatus p. *Latr.* Papilio (Pleb. rural.), *Linn. &c.*

THECLA PAN. Alis fuscis bicaudatis; subtus fuscescentibus, ocellis duobus anguli ani, externo nigro iride rufâ. (Expans. Alar. 1 unc. 3 lin.)

SYN. Papilio (Pleb. rur.) Pan, *Drury, App. vol.* 2.

HABITAT: Jamaica.

Upper Side. Antennæ black. Thorax, abdomen, and wings dark brown, or dark hair-coloured; the latter being furnished with two small tails like hairs, the extremities being white.

Under Side. Palpi white. Breast greyish. Wings nearly the same colour as on the upper side. The posterior having two eyes on each at the abdominal corners; one being black with a red iris, the other grey and faint; above them is a small indented white line, pointing to a spot of the same colour placed at the middle of the anterior edge.

Fabricius, without referring to this figure of Drury, described an Indian species of the same genus from Drury's collection, under the same specific name, which must of course be rejected. The French encyclopedists consider the latter as identical with the Fabrician Hesperia Isocrates.

EREBUS HERCYNA.

Plate XXIV. fig. 1, 2.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Noctuidæ, *Steph.*

GENUS. EREBUS, *Latr.* Thysania, *Dalm.* Phalæna (Noctua), *Drury.*

EREBUS HERCYNA. Alis dentatis fuscis obscurè undulatis, anticarum disco (puncto nigro) posticarum strigâ mediâ undulatâ pallidè cinereis. (Expans. Alar. 4 unc. 3 lin.)

SYN. Phalæna (Noctua) Hercyna, *Drury, App. vol.* 2.

HABITAT: Jamaica.

Upper Side. Antennæ filiform, brown, and thread-like. Head, thorax, abdomen, and wings greyish brown. The anterior wings having about two-thirds, next the shoulders, of a lighter brown, being

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separated from the darker part by a narrow, black, undulated line, similar to one which runs along the external edges from the tips to the lower corners; near the shoulders are placed two brown spots on each wing, one round, the other squarish. Posterior wings having two narrow, black, undulated lines crossing them, one next the external edges, the other about a quarter of an inch above them; the latter being edged with white.

Under Side. Palpi, breast, and sides greyish brown. Tongue spiral. Anterior wings rather lighter than on the upper side; having a dark undulated line crossing them, near the middle, from the anterior to the posterior edges; near the shoulders are two brown spots, one exactly like a comma, the other round and smaller; a white streak, edged at the top with brown, is placed near the lower corners; and along the external edges is a row of faint angulated brown spots placed over each scollop. Posterior wings greyish brown; having a small, square, brown spot near the shoulders, and a patch of a whitish colour at the upper corners. A dark brown undulated line, edged with white, begins near the middle of the anterior edges, which crossing the wings ends at the extremity of the body; and along the external edges runs a series of brown spots, placed over each scollop. All the wings are dentated.

SATURNIA MAIA.

Plate XXIV. fig. 3.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Bombycidæ, *Leach.*

GENUS. Saturnia, *Schrank.* Attacus, *Germar.* Phalæna (Attacus), *Drury.*

SATURNIA MAIA. Alis rotundatis nigris; fasciâ albâ, maculâ subocellari nigrâ, ano rufescenti. (Expans. Alar. 2 unc. 3 lin.)

SYN. Phalæna (Bombyx) Maia, *Drury, App. vol.* 2. *Cramer, Ins.* 2. *tab.* 98. *fig.* A.
Bombyx Proserpina, *Fabr. Ent. Syst.* 111. 1. *p.* 419. *No.* 40. *Gmel. Linn. S. N.* 2407. 480. *Abbot & Smith Ins. Georg. pl* 50. *Oliv. Enc. Méth.* 5. 37. 48. *Pal. Bauv. Ins. d'Afr. et d'Amer. Lep. pl.* 24. *f.* 2. 3.

HABITAT: New York *(Drury).* Georgia *(Abbot).*

Upper Side. Antennæ black, and strongly pectinated. Neck ash-coloured. Thorax and abdomen black, the extremity being orange. Wings pellucid. The anterior being black, with a white bar crossing them from the anterior to the posterior edges; whereon is a semi-eye placed near the former. Posterior wings black, with a broader white bar crossing them from the anterior to the abdominal edges; having near the former a black triangular spot thereon.

Under Side. Palpi and tongue indistinct. Legs and thorax black. Thighs orange. Abdomen grey, having its sides spotted with white; the extremity orange. Wings coloured as on the upper side, but rather more distinct. The thinness of the wings occasions the colours to be less distinct and clear than in most others of this kind. Margins of the wings entire.

The caterpillar of this very conspicuous moth feeds upon the red oak (Quercus rubra, Linn.), and other species of the same genus. The caterpillars represented by Abbot are considerably different in colour; one being dark-coloured, but covered over with minute yellow spots; and the other yellow, with a slender, dorsal, and two broader lateral black lines. The head is red, and each segment is furnished with a transverse series of tubercles,

emitting spinose setæ. It is, I presume, by the assistance of these setæ that "the caterpillar stings very sharply," as stated by Abbot. When small the whole brood lives together, but they disperse as they grow larger. One of these larvæ, in Virginia, went into the ground on the 1st of July, and the moth came out on the 20th of October; whilst in Georgia another buried itself on the 14th of June, and the fly did not appear until the 8th of December; after which other individuals kept coming out from time to time until the 16th of February. The male appears by day, and flies very swiftly, mounting and descending. The moth is called in America the Buck-fly, from an erroneous idea that its caterpillars are bred in the heads of the buck, which blow them out of their nostrils. This opinion originates from the fly coming out in the rutting season whilst the bucks are pursuing the does; the hunters therefore take notice of the insect in order to know the proper season for their sport, which is later in Georgia than in Virginia, as is also the appearance of the moth. They are much more plentiful in the last-mentioned country. (Abbot, loc. cit.)

The specific name of Drury having the priority, I have retained it; although that subsequently proposed by Fabricius is far more expressive, recalling, as Sir J. E. Smith observes, the idea of a fair flower which had

"by gloomy Dis been gathered,"

now become as grizly as the grim monarch of the infernal regions himself.

EREBUS EDUSA.

Plate XXIV. fig. 4.

ORDER: Lepidoptera. SECTION: Nocturna. FAMILY: Noctuidæ, *Leach.*

GENUS. EREBUS, *Latr.* Thysania, *Dalm.* Phalæna (Noctua), *Drury.*

EREBUS EDUSA. Alis castaneis fusco irroratis, anticis maculis nonnullis baseos alterisque duabus majoribus apicalibus; apiceque posticarum (nigro punctato) albis. (Expans. Alar. 2 unc. 2 lin.)

SYN. Phalæna (Noctua) Edusa, *Drury, App. vol.* 2.

HABITAT: New York.

Upper Side. Antennæ brown and filiform. Thorax, abdomen, and wings of a fine red sandy brown colour; the first ring of the abdomen with an ash-coloured spot. Anterior wings with two whitish oblong spots on the external edges of each; one near the tips, the other at the lower corners. A small whitish bar crosses these wings about a quarter of an inch from the body; and next the shoulders is a spot of the same whitish colour. Posterior wings brown, with an oblong whitish spot placed along the external edges, reaching from the abdominal almost to the upper corners. Cilia brown.

Under Side. Palpi brown. Tongue short. Breast, sides, and legs paler than on the upper side. Wings pale sandy-coloured, except a few small, round, dark spots dispersed over them, but scarcely discernible. Margins of all the wings dentated.

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SPHINX ANTÆUS.

Plate XXV. fig. 1.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Sphingidæ, *Leach.*

GENUS. SPHINX, *Auct.*

SPHINX ANTÆUS. Alis anticis cinereis nigro undatis, posticis nigris basi rufis fasciâque fenestratâ, capite bicorni. (Expans. Alar. ♂. 6 unc.—♀. 7 unc. 3 lin.)

SYN. Sphinx Antæus, *Drury, App. vol.* 2.
Sphinx Hydaspes, *Cram. Ins. tab.* 118. *fig.* A.
Sphinx Jatrophæ, *Fabr. Ent. Syst.* III. 1. 362. *No.* 22. *Gmel. Linn. S. N.* 2376. 63. *Merian Ins. Surinam, tab.* 38.

HABITAT: Jamaica *(Drury).* "In Americæ Jatropha gossypifolia." *Fabr.*

Upper Side. Antennæ white underneath, and brown above. Head and thorax dark rusty brown. Abdomen the same on the upper part, but on each side of the second, third, and fourth rings are three yellow spots. Anterior wings dark rusty brown, with several black, waved, and indented lines placed in different parts; and in the middle, near the anterior edges, are two small, round, white spots placed on each wing. The middle of the posterior wings transparent like glass; with a deep brown or black border running along the external edges from the abdominal to the upper corners; the part next the body being yellow.

Under Side. Breast and abdomen cream-coloured. Legs white and brown. Anterior wings, next the body, with two yellow longitudinal streaks; the remaining parts being red brown (differing from the colour on the upper side) without any other marks or clouds on them. Posterior wings coloured as on the upper side, except in the black border, which on this side is red brown.

SMERINTHUS JAMAICENSIS.

Plate XXV. fig. 2.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Sphingidæ, *Leach.*

GENUS. SMERINTHUS, *Latr.* Laothoë, *Fabr.* (Syst. Gloss.) Sphinx, *Linn.*

SMERINTHUS JAMAICENSIS. Alis anticis fusco, griseo, olivaceoque variis, posticis roseis ocello cœruleo nigro marginato. (Expans. Alar. 2 unc. 5 lin.)

SYN. Sphinx ocellatus Jamaicensis, *Drury, App. vol.* 2.
Sphinx ocellatus, *Fabr. Ent. Syst.* III. 1. 355. *No.* 1. *Gmel. Linn. Syst. N.* 2371. 1.

HABITAT: Jamaica *(Drury).* "In Europæ Americæ Spiræâ, Salice, Pomonâ." *Fabr.*

Upper Side. Antennæ pectinated and brown. Head and thorax soft dun-coloured, but dark brown above. Abdomen dun. Anterior wings delicate fine greyish, light brown next the shoulders and tips; the remaining parts being clouded with dark olive brown colours. Posterior wings red in the middle, but along the external edges dun-coloured; having a large black spot placed near the abdominal corners, the middle of which is blue, and imperfectly resembling an eye. All the wings are angulated.

Under Side. Breast and abdomen dun. Anterior wings red in the middle; but along the anterior edges ash-coloured, which runs to the tips where it forms a crescent, the inner part being dark olive brown; the external edges are olive brown, but lighter than the crescent. Posterior wings clouded with olive brown and ash-colour; having a double ash-coloured bar crossing them, which rises at the anterior edges of the anterior wings, and, running circularly, ends at the abdominal edges of the posterior.

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Fabricius cites the present figure amongst his synonyms of the common English Eyed-hawk moth (Smerinthus ocellatus), notwithstanding its very different habitat. It is evident, however, from the diversity in the outline of the wings of this insect and other English species, and from the circumstance of several species very closely allied to this being found in America (two of which are figured by Abbot and Smith in "the Insects of Georgia," pl. 25. and 26.), that Fabricius overlooked the minute characters which distinguish these species, and confounded them under the name of Ocellatus. Drury's insect very nearly approaches Sphinx Myops of Smith, but differs in the markings, especially of the posterior edge of the wings, and the colour of the posterior pair.

Sir J. E. Smith notices the very slight difference which exists between the caterpillars of nearly allied species of Sphingidæ, compared with the diversity in the larvæ of the genus Papilio of Limæus.

SPHINX FICUS.

Plate XXVI. fig. 1.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Sphingidæ, *Leach.*

GENUS. SPHINX, *Auct.*

SPHINX FICUS. Alis anticis cinereo fuscoque nebulosis, maculâ apicali albidâ; posticis nigris basi fasciâque mediâ luteis angulo ani albo. (Expans. Alar. ♂. 5 unc.—♀. 6 unc.)

SYN. *Linn. Syst. Nat.* 2. 800. 15. *Cramer, tab.* 246. *fig.* E. *Merian Ins. Surin. t.* 33. *Fabr. Ent. Syst.* III. 1. 366. *No.* 31. *Gmel. Linn. S. N.* 2380. 15.

HABITAT: Jamaica.

Upper Side. Antennæ ash-coloured. Head, thorax, abdomen, and anterior wings dark olive; the extremities of the latter ending in a point, where is situated a cream-coloured spot, close to the anterior edges, whose extremity runs to the tips; a patch of a dark cream colour is also placed on the external edges, joining to the lower corners. Posterior wings, next the body, dark cream-coloured; below this is a black bar, and another at the external edges, with a dark cream bar between them. The abdominal corners terminate in a point, which is of a fine white silvery hue.

Under Side. Breast, abdomen, legs, and wings pale olive brown, with three faint indistinct lines crossing them from the anterior to the abdominal edges. The anterior wings having a faint whitish streak placed at the tips.

SMERINTHUS ASTYLUS.

Plate XXVI. fig. 2.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Sphingidæ, *Leach.*

GENUS. SMERINTHUS, *Latr.* Laothoë, *Fabr.* (Syst. Gloss.) Sphinx, *Linn.*

SMERINTHUS ASTYLUS. Alis subangulatis cinnamoneo-roseis, anticarum apice strigisque subapicalibus fuscis, posticarum ocello cœrulescenti. (Expans. Alar. 2 unc. 10 lin.)

SYN. Sphinx Astylus, *Drury, App. vol.* 2.

HABITAT: New York.

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Upper Side. Antennæ reddish. Thorax and abdomen reddish cinnamon; having a dark line running from the head along the back to the tail. Anterior wings reddish cinnamon; having a dark apical margin, and a paler streak running circularly from the tips to the lower corners; where, at each of those places, is a yellowish indistinct mark. Posterior wings reddish cinnamon, paler at the base; near the abdominal corners is a round black spot, with an indistinct centre.

Under Side. Breast, thighs, and abdomen cinnamon. Legs black. Wings nearly coloured as on the upper side; the pale streaks and yellow marks, at the tips and lower corners, being more distinct and plain on this side; the black spots on the posterior wings being wanting. Drury considered it as a distinct species from that in the foregoing plate.

SPHINX HYLÆUS.

Plate XXVI. fig. 3.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Sphingidæ.

GENUS. SPHINX, *Auct.*

SPHINX HYLÆUS. Alis anticis fuscis margine interno apiceque variegatis; posticis nigris maculâ basali fasciâque mediâ transversâ cinereis. (Expans. Alar. 2 unc. 6 lin.)

SYN. Sphinx Hylæus, *Drury, App. vol.* 2. *Cramer Ins. pl.* 107. *fig.* C.? *Fabr. Ent. Syst.* III. 1. 373. *No.* 53. *Gmel..Linn. S. N.* 2383. 81.
Sphinx Prini, *Abbott & Smith Ins. Georg. tab.* 35.

HABITAT: New York.

Upper Side. Antennæ white within, brown without. Head, thorax, and abdomen rusty grey brown; the latter having on the sides of each ring a narrow white streak, and two small white spots on the upper part. Anterior wings rusty grey brown; having several dappled white marks dispersed on different parts, particularly at the shoulders and external edges; a narrow black line rises near the lower corners, running from thence to the anterior edges, and ending near the tips; cilia brown, spotted with white. Posterior wings black; cilia white, having some whitish marks thereon, particularly near the abdominal corners.

Under Side. Breast and abdomen white. Legs brown. Wings brown; having two faint indented lines crossing them, near the tips and lower corners. Posterior wings brown, with some faint undulated dark lines crossing them from the anterior edges to the abdominal corners.

The caterpillar of this insect, observed by Abbot, feeds upon the evergreen winterberry, or gall-berry (Prinos glaber, Linn.), whence Sir J. E. Smith altered the name of the species from Hylæus to Prini. It is of a pale green colour, with six lateral oblique pink lines, the last of which extends to the base of the nearly straight tail, which is of the same colour; the chrysalis is chesnut, without any porrected tongue-case. One of these caterpillars, observed by Abbot, went into the ground on the 17th of May, and appeared as a moth on the 19th of June; whilst another buried itself on the 25th of August, and remained in the earth until the 26th of April. The caterpillar is subject to the attacks of a small Ichneumon, the larvæ of which, when full grown, eat their way out of its body and spin themselves up on the outside. The moth is occasionally seen sucking the blossoms of gourds in the twilight, but is not common.

DEILEPHILA NESSUS.

Plate XXVII. fig. 1.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Sphingidæ, *Leach.*

GENUS. DEILEPHILA, *Ochs.* Spectrum p. *Scop.* Sphinx p. *Linn.*

DEILEPHILA NESSUS. Alis anticis cinerascentibus apice externo albido, posticis nigris fasciâ fulvâ, abdominis lateribus fulvis. (Expans. Alar. fere 5 unc.)

SYN. Sphinx Nessus, *Drury, App. vol.* 2. *Cramer Ins. tab.* 226. *fig.* D.
Sphinx equestris, *Fabr. Ent. Syst.* III. 1. 365. *No.* 29.

HABITAT: Madras.

Upper Side. Antennæ white above, and brown beneath. Head, neck, and thorax olive brown, with an ash-coloured streak running on each side thereof. Abdomen, next the thorax, very dark, from whence a brown list runs along the upper part to the extremity; the sides being of a golden yellow. Anterior wings dark green next the shoulders, softening to a nut brown as it runs along the anterior edges; the tips cream-coloured, from whence run two faint lines to the middle of the posterior edges; and also a lightish bar running in the same direction. Along the external edges they are of a delicate, soft, nut brown colour, and near the middle of each is a small black spot, placed near the anterior edge. Posterior wings black next the body, but nut brown along the external edges (about half way); the abdominal corners and adjoining parts being cream colour, as are the cilia and anterior edges.

Under Side. Breast, sides, and abdomen deep golden yellow; the middle of which and the legs are ash-coloured. Wings deep yellow. The anterior, next the body, greenish black, and cream-coloured next the tips. The posterior having several faint, dark, and undulated lines crossing them from the anterior to the abdominal edges.

GLAUCOPIS COARCTATA ♀.

Plate XXVII. fig. 2.

ORDER: Lepidoptera. SECTION: Crepuscularia? FAMILY: Ægeriidæ, *Steph.*

GENUS. GLAUCOPIS, *Fabricius.* (Syst. Gloss.) Zygæna, *Fabr. olim.* Sphinx p. *Drury.*

GLAUCOPIS COARCTATA. Alis flavo-hyalinis, marginibus maculâque anticarum fuscis, abdomine basi coarctato, maculis aureo-cœrulescentibus. (Expans. Alar. 1 unc. 9 lin.)

SYN. Sphinx coarctata, *Drury, App. vol.* 2. *Cramer Ins. tab.* 4. *f.* F. G.
Zygæna caudata, *Fabr. Ent. Syst.* III. 1. *p.* 403. *No.* 58. *Gmel. Linn. S. N.* 2398. 147. *Pallas Spicel. Zool.* 1. *tab.* 2. *fig.* 8. ♂.

HABITAT: Bay of Honduras (*Drury*). "In America meridionali" (*Fabr.*).

Upper Side. Antennæ pectinated, and thickest in the middle. Head black, with a blue spot in front. Neck blue. Thorax black, with an orange spot on each shoulder. Abdomen black; smallest next the thorax, with a row of golden blue spots on each side, and another at top; at the extremity is placed a hairy bristle, about a quarter the length of the abdomen. Wings yellowish, and transparent. The anterior having a black narrow border running round all their edges, except the anterior ones; and in the middle of each is an oblong black spot, joining to the anterior edge, which reaches almost half across the wing. Posterior wings with a black border along the abdominal edges and the upper corners; the anterior and external edges having none.

Under Side. Palpi externally white, but internally black. Tongue curled up. Breast black, the sides being blue. Legs black. Thighs white within, and blue without. Abdomen, next the thorax,

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white; the remainder being black, with four white spots on each side; that next the anus being the smallest. Wings as on the upper side; except the anterior, which have a yellowish border running along the posterior edges.

The extremity of the body of the male is furnished with a villose tail, as long as the body.

AGLAOPE PLUMIPES.

Plate XXVII. fig. 3.

ORDER: Lepidoptera. SECTION: Crepuscularia? FAMILY: Ægeriidæ, *Steph.*

GENUS. AGLAOPE, *Latr.* Sphinx, *Drury.*

AGLAOPE PLUMIPES. Nigricans, thorace maculis abdomineque fasciis albis, alis immaculatis, tibiis posticis plumosis. (Expans. Alar. 1 unc. 9 lin.)

SYN. Sphinx plumipes, *Drury, App. vol.* 2.

HABITAT: Bay of Honduras.

Upper Side. Antennæ black, but whitish at the tips; being thickest in the middle. Head black, with a white spot in front between the antennæ. Neck black, with three white spots on it. Thorax black, with several white spots thereon. Abdomen black, with several narrow white rings. Wings dark brown, immaculate.

Under Side. Palpi white. Tongue spiral. Breast black, spotted with white on its sides. Abdomen black, having one broad white ring on it, and several narrow ones. Legs long and black. Thighs white. Hinder legs furnished with tufts of hairs of a black colour, placed in such manner as to resemble the shaft of an arrow; the legs, above and below these tufts, being white. Wings coloured as on the upper side.

DEILEPHILA ALECTO.

Plate XXVII. fig. 4.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Sphingidæ, *Leach.*

GENUS. DEILEPHILA, *Ochs.* Spectrum p. *Scop.* Sphinx p. *Linn.*

DEILEPHILA ALECTO. Alis anticis griseis, strigis nonnullis obliquis apicalibus obscurioribus; posticis rubris basi margineque atris. (Expans. Alar. 3 unc. 9 lin.)

SYN. Sphinx Alecto, *Linn. Syst. Nat.* 2. 802. *No.* 20. *Cramer, tab.* 137. *fig.* D. *Fabr. Ent. Syst.* III. 1. 376. *No.* 59. *Gmel. Linn. S. N.* 2384. 20.

HABITAT: Madras.

Upper Side. Antennæ white above, brown underneath; hooked at the extremities. Head and thorax olive brown, with a white stripe running on each side from the front to the shoulders. Abdomen greyish brown; having a black spot on each side, near the thorax. Anterior wings soft olive brown; having a dark line running from the tips to the posterior edges, near the middle. Posterior wings, next the shoulders, black; the remainder being red, except the abdominal edges and corners, which are cream-coloured; and a brown margin running along the external edges.

Under Side. Breast, sides, legs, and abdomen yellowish clay-coloured. Wings dark orange, margined with faint brown.

DEILEPHILA CLOTHO.

Plate XXVIII. fig. 1.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Sphingidæ, *Leach.*

GENUS. DEILEPHILA, *Ochs.* Spectrum p. *Scop.* Sphinx p. *Linn.*

DEILEPHILA CLOTHO. Alis cinereo-olivaceis, lineâ rectâ e margine postico ad apicem ductâ nigrâ; posticis nigris externè fuscis, angulo ani pallidiori. (Expans. Alar. 4 unc.)

SYN. Sphinx Clotho. *Drury, App. vol.* 2.
Sphinx Butus, *Cram. tab.* 152. A.
Sphinx Gnoma, *Fabr. Ent. Syst.* III. 1. 376. *No.* 61. (nec Clotho, *Fabr. loc. cit. No.* 60.)

HABITAT: Madras.

Upper Side. Antennæ cream-coloured. Head brown olive, with a cream-coloured stripe running on each side to the abdomen. Thorax brown olive. Abdomen paler, having a black spot on each side near the thorax. Anterior wings light olive brown, with a line running from the tips to the middle of the posterior edges, and a small black spot next the shoulders. Posterior wings, next the body, black; but along the external edges brown, and palest at the abdominal corners.

Under Side. Tongue curled up. Breast and sides cream-coloured. Abdomen darker. Wings yellowish clay-coloured and freckled. The anterior having a dark cloud in the middle of each, near the shoulders; and the posterior having a faint indented line crossing them from the anterior to the abdominal edges.

ÆGERIA TIBIALIS.

Plate XXVIII. fig. 2.

ORDER: Lepidoptera. SECTION: Crepuscularia? FAMILY: Ægeriidæ, *Steph.*

GENUS. ÆGERIA, *Fabr.* Sesia, *Latr.* Sphinx, *Drury.* Zygæna, *Fabr.*

ÆGERIA TIBIALIS. Alis anticis fuscis immaculatis, posticis hyalinis; tibiis posticis plumosis testaceis. (Expans. Alar. 1 unc. 1½ lin.)

SYN. Sphinx tibialis, *Drury, App. vol.* 2.
Zygæna tibialis, *Fabr. Ent. Syst.* III. 1. 404. *No.* 62. *Gmel. Linn. S. N.* 2399. 151.

HABITAT: Sierra Leone.

Upper Side. Antennæ black, slightly pectinated; being thickest towards the extremities, and ending in a point; where, by the assistance of a microscope, may be observed a small tuft of hairs. Head ash-coloured. Thorax and abdomen dark hair colour; the latter being encircled with small white rings. Anterior wings narrow, and of a dark hair colour, without any marks or spots. Posterior hyaline. Cilia dark brown.

Under Side. Palpi yellowish. Tongue curled up. Breast and abdomen yellowish, having some grey hairs placed between them. Fore and middle legs dark brown. Hinder legs remarkably hairy; being scarlet on the out sides, and black on the inner and under sides, with some white tufts intermixed. Wings as on the upper side.

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GLAUCOPIS PHOLUS.

Plate XXVIII. fig. 3.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Zygænidæ.

GENUS. GLAUCOPIS, *Fabr. Ent. Syst.*, (Zygæna, *Fabr. olim.*)

GLAUCOPIS PHOLUS. Atra, alis omnibus basi fulvis. (Expans. Alar. 1 unc. 3 lin.)

SYN. Sphinx Pholus, *Drury, App. vol.* 2.
Zygæna Pholus, *Fabr. Ent. Syst.* III. 1. 406. *No.* 27. *Gmel. Linn. S. N.* 2399. 155. (Sphinx).

HABITAT: New England, New York, Maryland, Virginia, Carolina.

Upper Side. Antennæ black, and thickest in the middle. Head, eyes, thorax, and abdomen black. Shoulders and half the superior wings deep orange yellow; the apical half black. Posterior wings, next the body, paler yellow; the remaining two-thirds black.

Under Side. Tongue curled up. Breast, sides, abdomen, and legs black. Wings coloured as on the upper side, but not quite so brilliant.

GLAUCOPIS? ASTREAS.

Plate XXVIII. fig. 4.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Zygænidæ.

GENUS. GLAUCOPIS, *Fabr. Ent. Syst.* (Zygæna, *Fabr. olim.*)

GLAUCOPIS? ASTREAS. Alis subhyalinis albidis, maculâ mediâ apiceque fuscis, thorace nigro maculato, abdomine roseo. (Expans. Alar. 3 unc.)

SYN. Sphinx Astreas, *Drury, App. vol.* 2.
Noctua Astrea, *Fabr. Ent. Syst.* III. 2. *p.* 19. *No.* 35. *Gmel. Linn. S. N.* 2534. 593.

HABITAT: Bengal (*Drury*). New Holland (*Fabricius*).

Upper Side. Antennæ filiform, light brown, being thickest in the middle. Head cream-coloured, spotted with black. Neck the same, with a red cleft in the middle, and a black spot on each side. Thorax cream-coloured, spotted with black. Abdomen scarlet. Anterior wings transparent, whereof a third next the tips is opake and of a light hair colour, running about half way up the anterior edge of each wing; where is a streak of the same colour running half way across the wing. Anterior and posterior edges dark cream-coloured. Posterior wings transparent, the anterior edges and upper corners being dark cream-coloured.

Under Side. Palpi white externally, but red within; the extremities being black. Tongue curled up. Breast white, with a black spot on each side. Legs red. Under sides of the thighs white. Abdomen cream colour; having a narrow white streak on each side, whereon are several black spots. Wings coloured as on the upper side.

This insect is evidently the type of a subgenus, sufficiently distinct from any of the preceding.

SYNTOMIS FENESTRATA.

Plate XXVIII. fig. 5.

ORDER: Lepidoptera. SECTION: Crepuscularia? FAMILY: Zygænidæ.

GENUS. SYNTOMIS, *Illig. Latr.* Zygæna, *Fabr.* Sphinx, *Drury*.

SYNTOMIS FENESTRATA. Alis fuscis, anticarum maculis quatuor, posticarum unicâ hyalinis, abdomine fulvo nigroque annulato. (Expans. Alar. 1 unc. 2 lin.)

SYN. Sphinx fenestrata, *Drury, App. vol.* 2.
Zygæna fenestrata, *Fabr. Ent. Syst.* 111. 1. *p.* 392. *No.* 21. *Gmel. Linn. S. N.* 2394. 119. (Sphinx).

HABITAT: China.

Upper Side. Antennæ filiform, black, white at the tips, and thickest in the middle. Head tawny yellow. Neck black. Thorax and abdomen tawny yellow; the former having three black spots thereon, and the latter encircled with six black rings. Anterior wings having four transparent spots in each; the two next the shoulders being divided only by the nerves, in one of which appears two dark spots, one next the shoulders, and the other a quarter of an inch from it, crossing the transparent part. All the edges of these wings are very dark brown, the external and posterior ones being broadest. Posterior wings also having one large transparent spot in each; all the edges of these wings brown, the external and anterior ones being broadest, nerves yellow.

Under Side. Tongue curled up. Sides, breast, and abdomen yellow, with black rings. Legs dark brown and yellow. Wings as on the upper side.

GLAUCOPIS? PHALÆNOIDES.

Plate XXVIII. fig. 6.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Zygænidæ.

GENUS. GLAUCOPIS, *Fabr. Ent. Syst.* (Zygæna, *Fabr. olim.*)

GLAUCOPIS? PHALÆNOIDES. Alis anticis cinereis apicem versus subpellucidis, posticis parvis truncatis maculâ basali obscurâ. (Expans. Alar. 1 unc. 9 lin.)

SYN. Sphinx Phalænoides, *Drury, App. vol.* 2.

HABITAT: Bay of Honduras.

Upper Side. Antennæ pectinated and grey, being smallest at the extremity, which is white. Head grey. Neck white. Thorax ash-coloured. Abdomen pale yellow. Anterior wings ash-coloured next the shoulders, and along the anterior and posterior edges; the remaining parts being nearly transparent. Posterior wings singularly shaped; ash-coloured next the body, but the anterior parts are subpellucid. On these parts is placed a small triangular spot, of different colours when held in different directions, in some being yellow, in others ash-coloured.

Under Side. Tongue curled up. Breast yellow. Sides and abdomen white. Anterior wings appearing more pellucid than above. Anterior and external edges white; and near the shoulders is placed a white oval spot on each. Posterior wings ash-coloured, but round the edges are white; appearing to be less pellucid than on the upper side. The triangular spot is scarcely discernible on this side.

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SPHINX ACHEMON.

Plate XXIX. fig. 1.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Sphingidæ.

GENUS. SPHINX, *Auct.*

SPHINX ACHEMON. Alis anticis griseo-fuscis maculis tribus marginalibus et apicalibus brunneis, posticis roseis externe fuscis, maculis nigris submarginalibus. (Expans. Alar. 4 unc. 3 lin.)

SYN. Sphinx Achemon, *Drury, Append. vol.* 2.
Sphinx Crantor? *Cramer, tab.* 104. *fig.* A. *Fabr. Ent. Syst.* 375. 58.

HABITAT: Jamaica.

Upper Side. Antennæ reddish ash-coloured. Head and thorax greyish brown, with a large patch of a deep chocolate on each shoulder. Abdomen grey brown, but lighter on the sides. Anterior wings, next the shoulders, grey brown; but of a dark olive brown towards the tips and external edges. Near the middle of the posterior edges is placed a large square spot, of a deep chocolate colour: at the lower corners is a small triangular one; and a third somewhat larger than the last at the tips. Posterior wings rose-coloured next the shoulders and anterior edges, but grey-brown along the external edges; having a short row of black spots lying parallel thereto, and rising from the abdominal corners.

Under Side. Breast and abdomen grey brown, but lighter than on the upper side. Wings rusty red, immaculate, except a dark border running along the external edges; and also a faint narrow line crossing them, from the anterior to the abdominal edges.

MACROGLOSSA PASSALUS.

Plate XXIX. fig. 2.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Sphingidæ, *Leach.*

GENUS. MACROGLOSSA, *Ochs.* Sesia p. *Fabr.* Sphinx p. *Drury.*

MACROGLOSSA PASSALUS. Alis anticis badio fuscis, in medio fasciâ latâ pallidiori, posticis luteis margine lato fusco. (Expans. Alar. 2 unc.)

SYN. Sphinx Passalus, *Drury, App. vol.* 2.
Sphinx Pandora, *Fab. Ent. Syst.* III. 1. 380. *No.* 6.

HABITAT: China *(Drury).* India orientalis *(Fabricius).*

Upper Side. Antennæ brown, and thickest near their extremities. Head and thorax greyish-brown, with a dark line running down the middle. Abdomen red brown, with two yellow spots on each side. Tail broad and hairy. Anterior wings, next the body, dark chocolate, occupying a third part; next to this they are of a light red brown, growing darker as it approaches the tips. Inferior wings yellow next the shoulders; the apical half being of a fine dark chocolate.

Under Side. Head white. Tongue curled up. Breast and thighs yellow clay-coloured. Legs, sides, and abdomen dark clay-coloured. Wings, next the body, yellow clay-coloured; the remaining parts being red brown, with a faint darker border along the external edges.

GLAUCOPIS? PULCHRA.

Plate XXIX. fig. 3.

ORDER: Lepidoptera. SECTION: Crepuscularia? FAMILY: Zygænidæ.

GENUS. GLAUCOPIS, *Fabr. Latr.* Sphinx, *Drury.*

GLAUCOPIS PULCHRA. Alis anticis nigris, strigis sex fulvis; posticis nigris basi fulvis; abdomine fulvo annulato. (Expans. Alar. 1 unc.)

SYN. Sphinx Pulchra, *Drury, App. vol.* 2.

HABITAT: China.

Upper Side. Antennæ black, and smallest at their extremities. Head yellow. Thorax the same, streaked longitudinally with black. Abdomen black, having one ring near the middle; the extremity of the tail being yellow. Anterior wings black, with six yellow spots and streaks on each; one streak being the longest, running parallel and near to the posterior edge; another is placed on the edge itself. The space between these streaks and the anterior edge is occupied by the remaining four spots; the foremost being much narrower than the others. Posterior wings yellow next the shoulders, with a broad black margin running along the external edges.

Under Side. Tongue curled up. Breast and sides yellow. Legs black. Thighs yellow. Abdomen yellow; the extremity black, with two yellow rings. Wings as on the upper side, but the colours less brilliant.

SPHINX BRONTES.

Plate XXIX. fig. 4.

ORDER: Lepidoptera. SECTION: Crepuscularia. FAMILY: Sphingidæ.

GENUS. SPHINX, *Auct.*

SPHINX BRONTES. Alis griseis puncto discoidali albido, strigisque transversis undatis fuscis, posticis nigricantibus margine interno et ad angulum ani pallidioribus. (Expans. Alar. 4 unc.)

SYN. Sphinx Brontes, *Drury, App. vol.* 2.

HABITAT: New York.

Upper Side. Antennæ white within, brown outside. Head and neck dark brown. Thorax and abdomen grey; on the hinder part of the former are two black spots, and on each ring of the latter are two small black streaks, placed on its sides, down to the tail. Anterior wings grey, with a white spot in the middle of each near the anterior edges, and a small white cloud next the tips; having several curved and indented black lines crossing them from the anterior to the posterior edges, some being faint, others very distinct; cilia brown, spotted with white. Posterior wings very dark brown; but along the abdominal edges and corners grey; cilia white and brown.

Under Side. Breast white. Legs mottled. Abdomen white, with four reddish spots placed along the middle. Anterior wings dark grey brown, without any marks on them, except at the tips, where is placed a narrow white streak joining to the anterior edges. Posterior wings dark grey brown; but next the abdominal edges white, without any marks on them, except two faint lines crossing them from the anterior edges to the abdominal corners.

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TRICHIUS (ARCHIMEDIUS) DELTA.

Plate XXX. fig. 1, natural size—fig. 2, magnified.

ORDER: Coleoptera. SECTION: Lamellicornes. FAMILY: Cetoniidæ, *Mac Leay.*

GENUS. TRICHIUS, *Fabr.* Scarabæus p. *Drury.* SUBGENUS: Archimedius, *Kirby in Zool. Journ. No.* 10.

TRICHIUS (ARCHIMEDIUS) DELTA. Thorace nigro, triangulo albo, elytris testaceis puncto fusco. (Long. Corp. 5 lin.)

SYN. Scarabæus Delta, *Drury, App. vol.* 2. *Fabr. Syst. Ent. p.* 41. 7. *Syst. El.* 11. *p.* 133. 14. (Trichius D.) *Oliv. Ent.* 1. 6. *p.* 64. *t.* 11. *fig.* 107.

HABITAT: Virginia, North America.

Head rather large and quadrangular; black and cream-coloured on the upper part, red brown near the mouth. Eyes large, black, and prominent. Antennæ red brown. Thorax margined with cream colour, the extreme edge being black; having a black circular patch thereon, and a cream-coloured triangular mark within it. Scutellum cream, surrounded or edged with black; having a black streak down its middle, and just below it the suture is cream colour. Elytra dull orange, with a black spot near the middle of each. Body and abdomen ash-coloured. Thighs and tibiæ tawny orange. Tarsi 5-jointed; the hinder ones being remarkably long.

CHASMODIA? VIRENS.

Plate XXX. fig. 3.

ORDER: Coleoptera. SECTION: Lamellicornes. FAMILY: Rutelidæ, *Mac Leay.*

GENUS. CHASMODIA? *Mac Leay.* Cetonia p. *Fabr.* Scarabæus p. *Drury.*

CHASMODIA? VIRENS. Ferrugineo-flavescens, elytris virescentibus, sterno cornuto. (Long. Corp. 1 unc. 3 lin.)

SYN. Scarabæus virens, *Drury, App. vol.* 2. *Herbst. Col.* 111. *p.* 162. *t.* 27. *f.* 2. (Melolontha v.)
Cetonia smaragdula, *Fabr. Syst. Eleuth.* 11. *p.* 143. 44. *Syst. Ent. p.* 45. *No.* 11. *Schon. Syn. Ins.* 3. 157. (Hoplia sm.)

HABITAT: South America, *Schonherr.* "America, Mus. Dr. Hunter" *(Fabr.).*

Head and thorax brown olive, the former margined. Elytra olive, not covering the abdomen. Anus yellowish brown. Abdomen dark brown, the sides and middle being lighter. Legs dirty olive. Sternum long, extending beyond the fore legs. Tarsi short.

CETONIA (GNATHOCERA) AFRICANA.

Plate XXX. fig. 4.

ORDER: Coleoptera. SECTION: Lamellicornes. FAMILY: Cetoniidæ.

GENUS. CETONIA, *Fabricius.* Scarabæus p. *Drury.* SUBGENUS: Gnathocera, *Kirby, Gory & Percheron,* (Mon. Ceton.).

CETONIA (GNATHOCERA) AFRICANA. Ænea nitens, capitis spinâ incumbente, sterno porrecto, elytris punctis nigris, striatis. (Long. Corp. 9 lin.)

SYN. Scarabæus Africanus, *Drury, App. vol.* 2. *Fabr. Syst. Ent. p.* 48. 25. *Syst. El.* 2. *p.* 149. 73. (Cetonia Afr.) *Oliv. Ent.* 1. 6. *p.* 31. *t.* 8. *f.* 70.
Cetonia Smaragdina, *Herbst. Col.* 111. *p.* 258. 47. *t.* 32. *f.* 5.

HABITAT: Sierra Leone.

Entirely of a fine green colour, except the tarsi, which are black. The colour, which is very brilliant, appears not to be reflected from the surface, but seems as if covered with a fine transparent

varnish. Head quadrangular, margined and furrowed. Thorax smooth and finely polished. Scutellum large and triangular. Elytra slightly striated, with punctures, and margined. Sternum long and slender. Tibiæ with two spurs.

This species, according to Mr. Smeathman, frequents flowers; thus resembling in its habits the British species of the family to which it belongs.

DYNASTES ÆGEON.

Plate XXX. fig. 5.

ORDER: Coleoptera. SECTION: Lamellicornes. FAMILY: Dynastidæ, *Mac Leay.*

GENUS. DYNASTES, *Mac Leay.* Geotrupes, *Fabr.* Scarabæus p. *Linn.* Scarabæus, *Latreille.*

DYNASTES ÆGEON. Rufus, thoracis cornu brevi incurvo subtus barbato, capitis recurvo subulato. (Long. Corp. 1 unc. 6 lin.)

SYN. Scarabæus Ægeon, *Drury, App. vol.* 2. *Fabr. Ent. Syst. p.* 4. *No.* 4. *Syst. Eleuth.* 1. *p.* 5. *No.* 8. (Geotrupes Æg.) *Oliv. Ent.* 1. 3. *p.* 26. *No.* 26. *t.* 1. *f.* 4. *Jabl. Nat. Syst.* 1. *p.* 228. *No.* 6. *t.* 1. *f.* 4. *Sch. Syn. Ins.* 1. *p.* 4. *No.* 13.

HABITAT: "In Indiis" *(Fabricius).* Peruvia *(Dejean.).*

Head small and black, from whence springs a horn that bends towards the body. Eyes red brown. Thorax red brown, with a black margin; having a short thick horn issuing from it, that inclines towards the head: it has also a faint black spot on each side. Scutellum black and triangular. Elytra red brown; the margins and suture being black. Abdomen black, covered with olive brown hairs. Legs black. Hinder and fore tibiæ with three short spines, placed on the external part of each; and with two spurs, those of the middle ones being shortest. Ungues having a single hair issuing from between the hooks, forked at the end.

DYNASTES GERYON.

Plate XXX. fig. 6.

ORDER: Coleoptera. SECTION: Lamellicornes. FAMILY: Dynastidæ.

GENUS. DYNASTES, *Mac Leay.* Geotrupes, *Fabr.* Scarabæus p. *Linn.*

DYNASTES GERYON. Thorace excavato tricorni; lateralibus compressis unidentatis; capitis recurvo sumplici. (Long. Corp. 1 unc. 7½ lin.)

SYN. Scarabæus Geryon, *Drury, App. vol.* 2. *Fabr. Syst. Ent.* 1. *p.* 9. *No.* 21. *Syst. Eleuth.* 1. *p.* 11. *No.* 31. (Geotrupes G.) *Schonh. Syn. Ins.* 1. *p.* 10. 41. *Oliv. Ent.* 1. 3. *p.* 30. *t.* 24. *No.* 208.

HABITAT: "In Indiis" *(Fabr.).*

Head small, and margined in front; being furnished with a single horn that bends towards the thorax. Thorax margined, and dark brown (the general colour of the insect); being armed with three remarkable horns, whereof two are placed in front, one on each side; being very strong and broad one way, but thin the other, and branched at their extremities. The other horn is placed on the hinder part of the thorax, being short and thick at bottom, but sharp and pointed at top; springing from a protuberance that almost covers the escutcheon, which is small and triangular. All these horns are immoveable, and their situations occasion a most remarkable hollowness or cavity in the thorax, which

STOCKHOLMS TEST...

is smooth and shining; but the protuberance, next the scutellum, is full of punctures, and the edge notched. Elytra shining, punctured, and slightly striated. Abdomen and legs red brown, and hairy; the hinder ones being remarkably thick and strong, with two broad tibial spurs. The middle and fore tibiæ are strongly dentated, each being furnished with a thick spur. Anterior tibiæ with the first joint long and slender, but in the middle and hinder tibiæ, exceeding thick and strong.

LAMIA (STERNOTOMIS) MIRABILIS.

Plate XXXI. fig. 1.

ORDER: Coleoptera. SECTION: Longicornes. FAMILY: Lamiidæ.

GENUS. LAMIA, *Fabr.* Cerambyx p. *Linn.* (SUBGENUS: Sternotomis, *Perch.*)

LAMIA (STERNOTOMIS) MIRABILIS. Nigra, thorace spinoso, antice fasciis, elytris punctis viridibus, his basi mucronatis. (Long. Corp. 10½ lin.)

SYN. Cerambyx Mirabilis, *Drury, App. vol.* 2.
Lamia pulchra, *Fabr. Syst. Eleuth.* 2. 285. 25. *Syst. Ent.* 171. 6. (nec C. pulchra, *Drury, vol.* 1. *t.* 32. *f.* 6.) *Oliv. Ent.* 488. 115. *t.* 22. *f.* 167.

HABITAT: Sierra Leone.

Varied with beautiful green and black colours, the former exceedingly bright. Head green, with two others running downwards from the eyes. Jaws with the upper part green, the extremities black, with four green palpi. Antennæ black, ten-jointed, the basal joint being thickest. Thorax green, with black streaks running round it, the sides terminating in an obtuse point. Scutellum very small, black, and triangular. Elytra black and margined, beautifully streaked and spotted with green: the former running across the anterior part, the latter placed near the extremities. Abdomen green, with black rings. Legs green, streaked with black. Tarsi green at top, brown beneath.

LAMIA (AGAPHANTIA) BIPUNCTATA.

Plate XXXI. fig. 2.

ORDER: Coleoptera. SECTION: Longicornes. FAMILY: Lamiidæ.

GENUS. LAMIA, *Fabr.* Cerambyx p. *Linn.* (SUBGENUS: Agaphantia, *Serv.*)

LAMIA (AGAPHANTIA) BIPUNCTATA. Grisea; thorace spinoso, frontis cornu porrecto apice emarginato incurvo, elytris puncto nigro posticé flavo. (Long. Corp. fere 1 unc. 3 lin.)

SYN. Cerambyx bipunctatus. *Drury, App. vol.* 2.
Lamia fronticornis, *Fabr. Sp. Ins.* 1. 216. 2. *Syst. Eleuth.* 2. 281. 3. *Oliv. Ent.* 4. 67. 79. 163. *t.* 8. *f.* 54.
Cerambyx notatus, *Voet. Col. Ed. Panz.* 3. 32. 46. *t.* 11. *f.* 46.

HABITAT: Sierra Leone.

General colour brownish grey. Head deep and grey; one of the sexes having a remarkable thick and strong tubercle issuing from the middle of the face, terminating in two black acute angles, like horns. Mouth armed with two strong black jaws, and four grey palpi. Antennæ grey, and longer than the insect. Thorax grey, the sides terminating in a thick spine; having a broad, white streak crossing it on each side, and extending along the abdomen, beyond the middle legs, narrowing to its extremity. Scutellum small and triangular. Elytra grey and margined, having two round black spots on each, the

largest placed about the middle near the suture; the other (a small one) is on this side joined to the margin. A cream-coloured spot is situated just below the former, which extends from thence to the lateral margin. Legs grey, without any spines or marks.

LAMIA (ACANTHOCINUS) SPINOSA.

Plate XXXI. fig. 3.

ORDER: Coleoptera. SECTION: Longicornes. FAMILY: Lamiidæ.

GENUS. LAMIA, *Fabr.* Cerambyx p. *Linn.* (SUBGENUS: Acanthocinus, *Meg.*)

LAMIA (ACANTHOCINUS) SPINOSA. Fusca, griseo-variegata; thorace spinis quatuor, elytrisque seriebus quatuor longitudinalibus spinarum. (Long. Corp. 1 unc. 1½ lin.)

SYN. Cerambyx spinosus, *Drury, App. vol.* 2. *Sch. Syn. Ins.* 3. 381. (Lamia s.)

HABITAT: *(—— ? Drury).* South America?

Head and antennæ brown, the latter about the length of the insect. Thorax lighter brown and rough, terminating on the sides in two very long and sharp spines, bending upwards; on the middle are two others that are more obtuse and thick, with a small bump or rising behind them. Scutellum black. Elytra brown on the middle and sides, but at their extremities grey, terminating in two long spines. A row of small but sharp spines runs on each side the suture, from the middle almost to the scutellum; and along the sides runs another row from the anterior corners almost to the extremities. Six others are placed on each side the scutellum, running towards the middle in regular order; and on the remaining parts of the wing cases are placed a great number of small pustules, that are to be discerned only by the help of a microscope. Legs brown. Tibiæ marked with grey.

LAMIA PUNCTATOR.

Plate XXXI. fig. 4.

ORDER: Coleoptera. SECTION: Longicornes. FAMILY: Lamiidæ.

GENUS. LAMIA, *Fabr.* Cerambyx p. *Linn.*

LAMIA PUNCTATOR. Atra; elytris albo punctatis, antennis longis, thorace spinoso. (Long. Corp. 1 unc. 3 lin.)

SYN. Lamia punctator, *Fabr. Sp. Ins.* 1. 221. 30. *Syst. Eleuth.* 2. 298. 95. *Oliv. Ent.* 4. 69. 88. *t.* 8. 50. *a. b.*
Cerambyx chinensis, *Forster Cent. Ins.* 39.
Cerambyx farinosus, *Drury, App. vol.* 2. (nec *Linn. S. Nat.* 1. 2. 626.)

HABITAT: China.

General colour black. Head and antennæ black, the latter longer than the insect; the seven last articulations being black and white. Thorax rough and uneven at the top; the sides terminating in a thick, strong spine. Scutellum small and grey. Elytra shining black; the anterior part being rough with small pustules, having a number of small white spots sprinkled all over them. Abdomen greyish. Legs black. Tarsi grey, the under-part being brown.

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CERAMBYX (ROSALIA) ALPINA.

Plate XXXI. fig. 5.

ORDER: Coleoptera. SECTION: Longicornes. FAMILY: Cerambycidæ, *Leach.*

GENUS. CERAMBYX, *Linn. Drury.* (SUBGENUS: Rosalia, *Serville.)*

CERAMBYX (ROSALIA) ALPINA. Subcœrulescens, elytris fasciâ mediâ maculisque quatuor atris. (Long. Corp. 1 unc. 3 lin.)

SYN. Cerambyx alpinus, *Linn. Fn. Su.* 654. *Syst. N.* 1. 2. *p.* 628. 35. *Fabr. Syst. Eleuth.* 2. 272. 30. *Panzer F. I. G.* 2. 22. *Serville Ann. Soc. Ent. de France,* 2. 561. (Rosalia a.)

HABITAT: Hungary *(Drury).* The mountainous districts of Continental Europe.

General colour beautiful blueish grey, partaking much of a lead colour. Head grey. Eyes black. Antennæ longer than the insect, grey; the ends of the first four joints having tufts of black hair surrounding them. Thorax grey and cylindrical, with a small black spot at the top; the sides having a short spine, and a little swelling beneath it. Scutellum small and triangular. Elytra grey and margined, with three beautiful black spots, like velvet, on each; the middle one being largest, and crossing the wing cases entirely, the smaller one being placed near the anus. Legs blueish grey, but at the tips of the femora and tibiæ black. Tarsi ash grey at top, underneath brown.

CETONIA MARGINATA.

Plate XXXII. fig. 1.

ORDER: Coleoptera. SECTION: Lamellicornes. FAMILY: Cetoniidæ, *Mac Leay.*

GENUS. CETONIA, *Fabricius.* Scarabæus p. *Drury.*

CETONIA MARGINATA. Glabra, atra, thoracis elytrorumque marginibus rufis. (Long. Corp. 1 unc. 1½ lin.)

SYN. Scarabæus marginatus, *Drury, App. vol.* 2. *Fabr. Syst. Ent. p.* 46. 15. *Syst. El.* 11. *p.* 145. 50. (Cetonia m.) *Oliv. Ent.* 1. 6. *p.* 26. *t.* 5. *f.* 34. *Palisot de Bauvois Ins. d'Afr. & d'Amer.* 1. 11. *p.* 27. *t.* 5. *f.* 1. *& 2 var. De Geer Ins.* iv. *t.* 19. *f.* 10.

HABITAT: Sierra Leone.

Head small, squarish, and margined in front and the sides; shining black. Thorax and elytra soot-coloured and velvety, being surrounded along the sides with an orange border. Scutellum triangular, and rather large. Abdomen and breast black. Sternum small. Abdominal scales small, but distinct. Anterior tibiæ with three spurs, the others with two. Tarsal joints spined within, excepting those belonging to the fore legs, which are unarmed.

According to Mr. Smeathman, this beetle frequently settles on the thatch of houses, whence he is of opinion, that it is fond of dried palm leaves, " where it deposits its eggs." Afzelius however, who subsequently studied the Entomology and Botany of Sierra Leone with great attention, says, " Inveni hanc speciem in Sierra Leona mensibus Aprilis et præcipue Majo copiose in Cassia rugosa, mihi, et in foliis Ficus oblongæ, mihi. Eam in Jatropha Curcas (non autem Gorcas, ut ait Fabricius) nunquam observare licuit. Mas abdomine subtus medio sulcato, femina medio convexo." (Schonh. Syn. Ins. iii. p. 128.)

MELOLONTHA OCCIDENTALIS.

Plate XXXII. fig. 2.

ORDER: Coleoptera. SECTION: Lamellicornes. FAMILY: Melonthidæ, *Mac Leay*.

GENUS. MELOLONTHA, *Fabricius, &c.* Scarabæus p. *Linnæus.*

MELOLONTHA OCCIDENTALIS. Testaceus, thorace pubescente, elytris lineis quatuor parallelis, albis. (Long. Corp. 1 unc. 1½ lin.)

SYN. Scarabæus occidentalis, *Linn. Syst. Nat.* 1. 11. *p.* 555. 62. *Herbst. Col.* 111. *p.* 72. 19. *t.* 23. *f.* 8. *Sch. Syn. Ins.* 3. 169. 16. (Melolontha occ.) (Excl. Syn. *Fabricius.*) *De Jean Cat. Col. Ed.* 2. *p.* 159.

HABITAT: Jamaica *(Drury)*. Carolina (*Linn.*).

Head red brown, squarish, and margined, covered with short grey hairs. Thorax red brown, covered with short grey hairs, and with a white streak crossing it in the middle. Scutellum small, white, and triangular. Elytra red brown and margined, each being marked with three longitudinal white lines; one placed near the lateral margin, the other two in the middle. Suture white. Anus extending beyond the wing cases. Abdomen red brown, with grey rings. Legs red brown. The anterior tibiæ are furnished with three spurs, one sharp and small, the others thick and blunt. The other tibiæ are furnished with two sharp spurs. Ungues having an immoveable smaller one between them, and also two small spines, like hairs, springing from its root or base.

GOLIATHUS MICANS.

Plate XXXII. fig. 3.

ORDER: Coleoptera. SECTION: Lamellicornes. FAMILY: Cetoniidæ.

GENUS. GOLIATHUS, *De Lamarck.* Cetonia p. *Fabr.* Scarabæus p. *Drury.*

GOLIATHUS MICANS. Viridis nitens, clypeo porrecto recurvo bifido, tibiis anticis internè serratis. (Long. Corp. 1 unc. 9 lin.)

SYN. Scarabæus Micans, *Drury, App. vol.* 2. *Fabr. Syst. Ent. p.* 42. *No.* 1. (Cetonia m.) *Syst. El.* 11. *p.* 136. 6. *Oliv. Ent.* 1. 6. *t.* 1. *f.* 2. *a. b. Herbst. Col.* 111. *p.* 201. 3. *t.* 28. *f.* 3. *Guérin. Icon. R. An. Ins. pl.* 26. *f.* 5. *Gory & Percheron Mon. Ceton. pl.* 25. *f.* 1.

HABITAT: Calabar, on the West Coast of Africa, about 5 or 6° North Lat. (*Drury*). Senegal (*Gory*).

Head green and nearly square; the surface irregular and uneven. The corners are pointed, forming two black obtuse angles. From the front of the head issues a small black and thick protuberance, like a horn, that divides into two branches, each of which terminates in a sharp point. All the remaining parts, except the tarsi, are of a fine lively green, differing in shades according to the manner in which it is held to the light; and appearing to be so highly polished, that the colour seems reflected from a part beneath the surface. Scutellum large and triangular. Sternum small. Abdominal scales small and close. The fore legs are very long and slender, the tibiæ being dentated. Elytra having two small swellings near their extremities, and furnished at the suture with two short thick spines; the anus extending beyond them. Anterior tarsi having a small tuft of brown hair placed on the last joints, next the ungues.

HOPLIA CŒRULEA.

Plate XXXII. fig. 4.

ORDER: Coleoptera. SECTION: Lamellicornes. FAMILY: Melolonthidæ, *Mac Leay*.

GENUS. HOPLIA, *Illiger*. Melolontha p. *Fabricius*. Scarabæus p. *Drury*.

HOPLIA CŒRULEA. Supra cœruleo, subtus argenteo-squamosa nitens, clypeo integro. (Long. Corp. circ. 5 lin.)

SYN. Scarabæus cœruleus, *Drury, App. vol.* 2. *Herbst. Col.* III. *p.* 121. 73.
Scarabæus farinosus, *Linn. Syst. Nat.* 1. 2. 555.
Melolontha farinosa, *Fabr. Ent. Syst. p.* 38. 31. *Syst. Eleuth.* II. 177. 29. *Panzer Faun. Ins. Germ.* 28. 16. *Guérin Icon. R. An. Ins. t.* 25. (Hoplia far.)
Melolontha squamosa, *Olivier Ent.* 1. 5. *p.* 66. 90. *t.* 2. *f.* 14. a. c. (nec. *Fabr.*)
Hoplia formosa, *Latr. Gen. Cr. & Ins.* 2. *p.* 116. 2. *Schon. Syn. Ins.* 3. 158. (errore typic. pro farinosa.)

HABITAT: South of Europe, France (*Drury*).

All the upper parts of this insect are of a beautiful brilliant sky blue. The under parts are of a silvery pale green. Head somewhat quadrangular, and margined. Thorax and upper parts covered with a short fine down or hair. Scutellum triangular. Elytra margined, and at their extemities having two tubercles, the anus extending beyond them. All the under parts are covered with short hair, like down, of a silvery green colour. Abdominal scales large and distinct. Sternum not produced. Tarsi red brown, the posterior having only a single unguis.

Taken in the greatest profusion near Sevres by M. A. Gory.

CETONIA CORDATA.

Plate XXXII. fig. 5.

ORDER: Coleoptera. SECTION: Lamellicornes. FAMILY: Cetoniidæ.

GENUS. CETONIA, *Fabricius, &c.* Scarabæus p. *Linn. &c.*

CETONIA CORDATA. Testacea, thorace lineis punctisque duobus, elytris maculis quatuor transversis nigris. (Long. Corp. 9 lin.)

SYN. Scarabæus cordatus, *Drury, App. vol.* 2. (1773).
Cetonia olivacea, *Fabr. Syst. Ent. p.* 47. 26. *Syst. El.* II. *p.* 147. 59. *Oliv. Ent.* 16. *p.* 37. 41. *t.* 8. *f.* 69. a.
Cetonia Tigris, *Herbst. Col.* III. *p.* 243. 30. *t.* 30. *f.* 8.

HABITAT: New York.

Head sooty black, having a cordate mark of a dark orange brown colour. Thorax orange brown, with two black marks crossing it, and a black lateral spot. Scutellum triangular and orange brown. Elytra orange brown, with four black bars, of different shapes, crossing them, and reaching almost from side to side; the first being situated next the thorax, and interrupted by the escutcheon, the margin and suture being black. Anus extending beyond the wing cases. Abdomen orange brown, with small black rings. Sternum short and yellow. Abdominal scales small and close. Legs orange brown.

Mr. Smeathman informed Mr. Drury that this insect, in its natural state, is black and yellow, and not black and orange-brown, as described above; its yellow colour soon fading after death, so that it seldom arrives in Europe in its natural colours.

BARIDIUS ? OVALIS.

Plate XXXIII. fig. 1. natural size—2. magnified.

ORDER: Coleoptera. SECTION: Rhyncophora. FAMILY: Curculionidæ. SUBFAMILY: Cholides.

GENUS. BARIDIUS? *Schonherr.* Baris, *Germar, Dejean.* Curculio p. *Drury.*

BARIDIUS ? OVALIS. Fuscus, thoracis marginibus, elytrorumque basi et maculis quatuor lateralibus transversis albidis. (Long. Corp. lin. 5.)

SYN. Curculio ovalis, *Drury, App. vol.* 2. (Exclus. Syn. *Linn.*)

HABITAT: Jamaica (*Drury*).

Head small, round, and black, being furnished with a beak as long as the thorax. Antennæ inserted near the end of the beak, consisting apparently of nine articulations, that next the beak being longest. Thorax dark brown, the sides cream-coloured. Elytra dark brown, with three large cream spots on each, placed lengthways. Legs black, with cream spots and hairs on them. Each of the femora is furnished with a single spine.

Drury has incorrectly given this West Indian insect as identical with the northern European species, Curculio ovalis of Linnæus. Not having seen the insect I place it in the genus Baridius with doubt; it seems also somewhat allied to Ameris Pavo.

CALANDRA SERRIROSTRIS ♀ ?

Plate XXXIII. fig. 3.

ORDER: Coleoptera. SECTION: Rhyncophora. FAMILY: Curculionidæ. SUBFAMILY: Calandrides.

GENUS. CALANDRA, *Fabr.* Rhyncophorus, *Herbst.* Curculio p. *Linn.*

CALANDRA SERRIROSTRIS ♀ ? Obscura rufa; thorace lineis duabus magnis dorsalibus, elytris substriatis. (Long. Corp. rostro incl. 2 unc. 6 lin.)

SYN. Calandra serrirostris ♂ ? *Fabr. Syst. Eleuth.* 2. 429. *Oliv. Ins.* 83. *tab.* 17. *f.* 211.
Curculio longipes, *Drury, Append. vol.* 2. (nec. *Fabr. Syst. Ent.* 2. 395.)

HABITAT: Island of Johanna, near Madagascar.

General colour dark red brown. Head as long as the thorax, terminating in a slender beak, three-fourths of an inch long. Antennæ apparently 8-jointed, that next the head being nearly as long as all the rest. Thorax marked longitudinally, with four black stripes or bars. Scutellum very narrow and triangular. Elytra marked longitudinally with several black narrow striæ, and are shorter than the abdomen. Legs very long, especially the anterior pair. Tibiæ with sharp hook-like spurs, those of the fore-legs being longer than the rest.

The insect described by Fabricius under the name adopted above is distinguished from that here figured, by having the "Rostrum porrectum, rectum, dorso apice serratum, dente elevato compresso." Its habitat is also distinct, being from Java. It may possibly be a male, and that figured by Drury a female.

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PREPODES? CAMELEON VAR.

Plate XXXIII. fig. 4.

ORDER: Coleoptera. SECTION: Rhyncophora. FAMILY: Curculionidæ, SUBFAMILY: Brachyderides.

GENUS. PREPODES, *Sch.*? Chlorima, *Dej.* Curculio p. *Drury.*

PREPODES? CAMELEON, VAR. Obscure aureo-cupreus, elytris striatis. (Long. Corp. 1 unc. 1½ lin.)

SYN. Prepodes? Cameleon, *Sch. Syn. Ins. Curc.* 2. 18. 4. var. β. *Fabr. Syst. El.* 2. 532. 147. (Curcul. c.) *Herbst. Col.* vi. *p.* 115. *No.* 77. *t.* 67. *f.* 8.
Curculio rufescens, *Drury, App. vol.* 2. *Herbst. Col. t.* 67. *f.* 9.

HABITAT: Jamaica.

General colour dull golden copper. Head as long as the thorax, resembling a beak. Scutellum very small. Elytra slightly striated, terminating at their extremities like the end of a boat. Tibiæ slightly hairy.

PREPODES? CAMELEON VAR.

Plate XXXIII. fig. 5.

ORDER: Coleoptera. SECTION: Rhyncophora. FAMILY: Curculionidæ. SUBFAMILY: Brachyderides.

GENUS. PREPODES, *Sch.*? Chlorima, *Dej.* Curculio p. *Drury.*

PREPODES? CAMELEON VAR. Capite thoraceque nigris, hoc subtus aureo-viridi, elytris nigris suturâ punctisque aureo-viridibus. (Long. Corp. 1 unc. 1 lin.)

SYN. Prepodes? Cameleon, *Schon. loc. cit. supr.* var. γ. *Fabr. Syst. El.* 2. 532. 147. (Curcul. c.) *Herbst. Col.* vi. *p.* 115. *No.* 77. *t.* 67. *f.* 8.
Curculio similis, *Drury, App. vol.* 2. *Herbst. Col. t.* 67. *f.* 10.

HABITAT: Jamaica.

Head black, and long, resembling a beak. Thorax black at top, but underneath of a fine golden green. Scutellum very small. Elytra black, speckled with golden green. Suture golden green. Abdomen black, the sides golden green. Legs black. Thighs plain and smooth.

ENTIMUS IMPERIALIS (THE DIAMOND BEETLE).

Plate XXXIV. fig. 1.

ORDER: Coleoptera. SECTION: Rhyncophora. FAMILY: Curculionidæ. SUBFAMILY: Entimides.

GENUS. ENTIMUS, *Germar.* Curculio, *Linn. Latr. &c.*

ENTIMUS IMPERIALIS. Oblongo ovatus; niger, thorace lineâ dorsali viridi-argenteâ impresso; elytris regulariter sat rude punctato-striatis, punctis squamulis viridi-aureis repletis, interstitiis angustis, subcostatis denudatis. (Long. Corp. 1 unc. 3 lin.)

SYN. Curculio imperialis, *Forster Cent. Ins. p.* 34. *Drury, App. vol.* 2. *Fabr. Syst. El.* 2 *p.* 508. 3. *Olir. Ent.* 5. 83. *p.* 293. *t.* 1. *f.* a. b. c. *Schon. Syn. Ins. Curcul.* 1. 455. 2.

HABITAT: Brazil.

Head black, and covered with minute scales, of a beautiful golden green colour, forming two longitudinal black streaks, and three green ones. From this part proceeds a thick short beak, streaked with black and green. Antennæ black. Thorax golden green, with two broad longitudinal black lines on the

top, and a narrow green one between them; the green colour being thickly beset with small black spots. Scutellum very small and green. Elytra next the thorax, almost quadrangular, narrowing to their extremities, the ground colour being black and shining, and ornamented with a great number of small round hollow punctures, or dents, of a golden green, which are smaller on the sides and extremities than the top, being regularly placed in grooves, so as to compose not less than eleven striæ (including the suture) on each elytron. Abdomen green, with silvery rings. Legs black, and covered with green hairs; the thighs being plain. Tarsi brown underneath.

RHINA BARBIROSTRIS ♀.

Plate XXXIV. fig. 2.

ORDER: Coleoptera. SECTION: Rhyncophora. FAMILY: Curculionidæ. SUBFAMILY: Rhyncophorides, *Sch.*

GENUS. RHINA, *Latrielle.* Curculio, *Drury.*

RHINA BARBIROSTRIS. Nigricans; thorace rotundato tuberculato, elytris striatis et punctatis; tibiis anticis subtus 4-dentatis. (Long. Corp. 1 unc. 3 lin.)

SYN. Curculio barbirostris, *Fabr. Ent. Syst.* 2. 418. 105. *Latrielle Gen. Crust. &c.* 2. 269. (Rhina barb.) ♂.
Curculio niger, *Drury, App. vol.* 2. ♀.
Rhina verrirostris, *Illiger*, ♀

HABITAT: The Island of Johanna, near Madagascar.

General colour black. Head short and round, terminating in a small narrow beak, almost the length of the thorax; in the middle of which are placed the antennæ. Eyes entirely surrounding the head, meeting at top and underneath. Thorax round and rough, being full of small tubercles; having a posterior margin. Scutellum small and triangular. Elytra striated, full of small punctures or holes, and covering the anus. Femora smooth. Anterior tibiæ furnished with four teeth, the hinder ones with three. Tarsi brown beneath.

The male has the rostrum more elongated and furnished with long hairs, somewhat like a bottle brush. It is figured by Olivier, Entomol. Vol. 5. Charans, pl. 4. f. 37. a. b.

BRACHYCERUS ORNATUS.

Plate XXXIV. fig. 3.

ORDER: Coleoptera. SECTION: Rhyncophora. FAMILY: Curculionidæ. SUBFAMILY: Brachycerides.

GENUS. BRACHYCERUS, *Fabr.* Curculio, *Linn. &c.*

BRACHYCERUS ORNATUS. Ovatus, niger thoracis dorso valde inæquali sculpturato, spinâ laterali obtusâ tuberculatâ, elytris seriatim tuberculatis, interjectis maculis subimpressis rotundatis ferrugineo squamosis, femoribus puncto rufo-squamoso. (Long. Corp. 1 unc. 9 lin.)

SYN. Curculio ornatus, *Drury, App. vol.* 2.
Brachycerus apterus, *Herbst. Col.* 7. *p.* 75. *No.* 1. *t.* 101. *f.* 1.
Brachycerus granosus, *Schonherr Syn. Ins. Curcul.* 1. *p.* 387. *No.* 2.?

HABITAT: (——? *Drury*). Cape of Good Hope (*Schonherr*).

Head very short and entirely occupied by the eyes, which are black and meet underneath. From this part issues a strong thick beak, black and rough, with the antennæ placed in the middle; the upper part being full of small holes or punctures. Thorax dark red, with a number of black excrescences on

the middle and sides; the latter ending in two thick pointed tubercles. Scutellum obsolete. Elytra dark red, and full of black round tubercles, some very small, others larger, placed longitudinally in striæ, extending so low along the sides, as nearly to meet underneath. Legs black and full of punctures. Thighs streaked with red. Tarsi brown underneath.

HIPPORHINUS? MURICATUS.

Plate XXXIV. fig. 4.

ORDER: Coleoptera. SECTION: Rhyncophora. FAMILY: Curculionidæ, SUBFAMILY: Entimides?

GENUS. HIPPORHINUS, *Schonherr*. Curculio p. *Drury*.

HIPPORHINUS? MURICATUS. Fuscus; thorace cylindrico nigro-pustulato; elytris marginatis, striatis, interstitiis tuberculis elevatis rotundatis seriatim dispositis; femoribus ad apicem dente magno obtuso armatis. (Long. Corp. 9 lin.)

SYN. Curculio muricatus, *Drury, App. vol.* 2.

HABITAT: Bay of Honduras, America *(Drury)*.

Head small. Eyes entirely surrounding the head, meeting underneath and at top. Beak long, black, and slender, the antennæ being placed near the extremity. Thorax brown, cylindrical, and covered with a great number of small black pustules. Scutellum triangular. Elytra brown, margined, and striated or furrowed; being thick beset with a great number of high, round pustules, regularly placed in rows from the thorax to the anus; some being large, others very small. Femora furnished near the tips with a thick obtuse spine. Tibiæ with a single smaller spur.

SAGRA FEMORATA.

Plate XXXIV. fig. 5.

ORDER: Coleoptera. SECTION: Eupoda. FAMILY: Crioceridæ, *Leach*.

GENUS. SAGRA, *Fabricius*. Tenebrio p. *Drury*.

SAGRA FEMORATA. Viridi-ænea, femoribus tibiisque posticis dentatis. (Long. Corp. 1 unc.)

SYN. Tenebrio femoratus, *Drury, App. vol.* 2. *Fabr. Mant.* 1. *p.* 66. (Alurnus f.) *Syst. Eleuth.* 2. 26. 1. (Sagra f.) *Herbst. Col.* 7. 266. *t.* 112. *f.* 6. *Weber Obs. Ent. p.* 60. 1.
Tenebrio viridis, *Sulzer Gesch. der Ins. t.* 7. *f.* 8.

HABITAT: (——? *Drury*). India *(Fabricius)*.

General colour golden, blueish, green. Head small, flat, and square, with four palpi. Antennæ black, the two terminal joints being larger and longer than the rest. Thorax about twice the breadth of the head, and a third part longer, not cylindrical, but flattish and smooth. Scutellum small and triangular. Elytra twice the breadth of the thorax, smooth and margined. Thighs thick and strong, the hinder ones having a short thick obtuse spine placed near the tips. Posterior tibiæ long, thin, and grooved underneath, thickest next the tips, where are placed three short and strong spines, one in the middle, the others on the sides. Tarsi very flat and brown underneath.

LAMIA (POLYRHAPHIS) CANCRIFORMIS.

Plate XXXV. fig. 1. (or the upper figure).

ORDER: Coleoptera. SECTION: Longicornes. FAMILY: Lamiidæ.

GENUS. LAMIA, *Fabr.* Cerambyx, *Linn.* (SUBGENUS: Polyrhaphis, *Serv.*)

LAMIA (POLYRHAPHIS) CANCRIFORMIS. Thorace multidentato; dorso plano, elytris pustulatis, tibiisque anticis unidentatis. (Long. Corp. fere 1 unc.)

SYN. Cerambyx cancriformis, *Fabr. Sp. Ins.* 1. 209. 4. *Syst. Ent.* 165. 4. *Syst. Eleuth.* 2. 289. 40. (Lamia c.)
Cerambyx pustulatus, *Drury, App. vol.* 2.

HABITAT: Jamaica.

General colour grey brown. Head furnished with strong mandibles. Antennæ (with the basal joint very thick) much longer than the insect. Thorax rough, gibbous, and full of small pustules, two of which form an obtuse spine on the sides. Scutellum small and triangular. Elytra margined, and full of small pustules, having two spines fixed at their extremity, near the suture. Fore-legs long. Tibiæ with a single spur. Femora clavate.

LAMIA (MONOCHAMUS) DENTATOR?

Plate XXXV. fig. 2. (or the left-hand figure).

ORDER: Coleoptera. SECTION: Longicornes. FAMILY: Lamiidæ.

GENUS. LAMIA, *Fabr.* Cerambyx, *Linn. &c.* (SUBGENUS: Monochamus, *Meg.*)

LAMIA (MONOCHAMUS) DENTATOR. Thorace spinoso, fusco cinereoque varia. (Long. Corp. 1 unc. 1½ lin.)

SYN. Lamia dentator, *Fabr. Syst. El.* 2. *p.* 294. 70. *Haworth in Ent. Trans.* 1. *t.* 1?
Cerambyx carolinensis, *Oliv. Ent.* 4. 67. *p.* 85. *t.* 12. *f.* 88.?
Cerambyx notatus, *Drury, App. vol.* 2.

HABITAT: See Observation below.

Head grey brown. Antennæ grey brown, and about the length of the insect. Palpi four, and just above the mouth are placed, on each side the head, two protuberances. Thorax grey brown, dappled with black; having on each side a short thick spine. Scutellum small and triangular. Elytra grey brown, dappled with small black streaks, and extending beyond the anus. Abdomen, breast and legs grey brown, like the rest of the insect.

The insect figured by Drury is stated to have been received from Norway. No Longicorn beetle, corresponding with Drury's insect has been ascertained to be a native of that country, or indeed of Europe. Hence, as this figure very nearly corresponds with the American Lamia dentator of Fabricius, I am inclined to believe that Drury's specimen had been imported from North America, in the same manner as the specimen described and figured by Mr. Haworth in the Transactions of the former Entomological Society, and which was taken near London. I have, however, marked the synonyms with doubt, this figure having been overlooked by all subsequent authors.

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ELATER AURATUS.

Plate XXXV. fig. 3.

ORDER: Coleoptera. SECTION: Serricornes. FAMILY: Elateridæ, *Leach.*

GENUS. ELATER, *Linn. &c.*

ELATER AURATUS. Cyaneo aut viridi-nitidus subtus cupreus, elytris acuminatis. (Long. Corp. 1 unc. 9 lin.)

SYN. Elater auratus, *Drury, App. vol.* 2. (1773). *Linn. Syst. Nat. (Gmel.)* 1. iv. 19. 14.
Elater fulgens, *Fabr. Ent. Syst.* 1. 11. *p.* 220. 22. 17. (1792.) *Syst. Eleuth.* 11. 226. *Oliv. Ent.* 2. 31. 12. *t.* 4. *f.* 43. *Herbst. Col.* ix. *p.* 343. *t.* 158. *f.* 12.

HABITAT: China.

Head green. Antennæ black, and shorter than the thorax; having at each joint some short hairs. Thorax green, and margined, appearing as if finely polished; the hinder corners being pointed, and forming obtuse angles. Scutellum round and shining. Elytra likewise green, shining, and margined; their extremities terminating in two sharp points. Under side shining green, except the tarsi, which are black.

This beautiful insect may be regarded as the most brilliant species belonging to the family, Elateridæ, the majority of which are of dull and uniform colours, thus affording a strong contrast to the splendid family of Buprestidæ, to which they are very nearly allied. The family Elateridæ are all, as Drury observes, provided with an instrument which extends along the breast, about the thickness of the thighs, to the abdomen, where the end of it is received into a groove, forming a spring, by which the creature, when laid on its back, can jump to a considerable height, from which circumstance it has received the name of Elater.

LAMIA (ACANTHODERES) ARANEIFORMIS.

Plate XXXV. fig. 4. (or the bottom figure).

ORDER: Coleoptera. SECTION: Longicornes. FAMILY: Lamiidæ.

GENUS. LAMIA, *Fabr.* Cerambyx p. *Linn.* (SUBGENUS: Acanthoderes, *Serv.*)

LAMIA (ACANTHODERES) ARANEIFORMIS. Thorace spinoso tuberculatoque elytris porosis, maculâ marginali fuscâ, antennis longis. (Long. Corp. fere 1 unc.)

SYN. Cerambyx araneiformis, *Linn. Syst. Nat.* 1. 2. 625. *Oliv. Ent.* 4. 67. 64. *t.* 5. *f.* 34. *Fabricius Syst. Eleuth.* 2. 288. 37. (Lamia a.) *Sloane Hist. Jamaica*, 2. 209. 19. 2. *t.* 237. *f.* 24. *Serville Ann. Soc. Ent. Fr.* 1835. 30. (Acanthoderes a.)

HABITAT: Antigua (*Drury*). "In America Meridionali" (*Fabr.*).

Head dark brown. Antennæ longer than the insect; the sixth joint being furnished with a small tuft of hairs. Thorax brown, very rough and uneven, occasioned by the many bumps or swellings on it; two of which, like thick spines, are situated on the sides. Scutellum small. Elytra brown, and full of small pustules. In the middle are two oblong black streaks, placed next the suture. Legs brown, femora very thick. Tarsi yellow underneath, and pilose; those of the fore-legs being very hairy.

BLATTA NIVEA.

Plate XXXVI. fig. 1.

ORDER: Orthoptera. SECTION: Cursoria. FAMILY: Blattidæ, *Leach.*

GENUS. BLATTA, *Linn. &c.*

BLATTA NIVEA. Alba, capite antennisque flavis thoracis dorso margineque interno elytrorum flavescentibus. (Long. Corp. lin. 12.)

SYN. Blatta Nivea, *Linn. Syst. Nat.* 1. 2. *De Geer Ins.* 3. *t.* 44. *f.* 10. *Herbst. Arch. t.* 49. *f.* 8. *Fabr. Ent. Syst.* 2. *p.* 8.

HABITAT: New York (*Drury*). "In America insulis" *(Fabr.)*.

Head and antennæ yellow. Thorax and abdomen pale green. Wings and wing-cases of a transparent white; the latter having a yellow streak on the anterior margin, which seems to extend along the margin of the thorax. Legs, and the under side of the abdomen, pale yellowish green.

The family Blattidæ, corresponding with the Linnæan genus Blatta, may be regarded as containing one of the most obnoxious assemblages of our insect enemies. Of this family, this and the two following figures represent different species. The observations upon the economy of this family, published by our author in the preface to this work, present the most complete account of the ravages and obnoxious qualities of this tribe which has hitherto been published. They are as follows:—

"The *cock-roaches* are another race of pestiferous beings, equally noisome and mischievous to natives or strangers, but particularly to collectors. These nasty and voracious insects fly out in the evenings, and commit monstrous depredations; they plunder and erode all kinds of victuals, drest and undrest, and damage all sorts of clothing, especially those which are touched with powder, pomatum, and similar substances; every thing made of leather, books, paper, and various other articles, which, if they do not destroy, at least they soil, as they frequently deposit a drop of their excrement where they settle, and some way or other, by that means damage what they cannot devour. They fly into the flame of candles, and sometimes into the dishes; are very fond of ink and of oil, into which they are apt to fall and perish. In this case they soon turn most offensively putrid, so that a man might as well sit over the cadaverous body of a large animal, as write with the ink in which they have died. They often fly into persons' faces or bosoms, and their legs being armed with sharp spines, the pricking excites a sudden horror not easily described. In old houses they swarm by myriads, making every part filthy beyond description wherever they harbour, which in the day time is in dark corners, behind all sorts of clothes, in trunks, boxes, and, in short, every place where they can lie concealed. In old timber and deal houses, when the family is retired at night to sleep, this insect, among other disagreeable properties, has the power of making a noise which very much resembles a pretty smart knocking with the knuckle upon the wainscotting. The Blatta Gigantea of Linnæus in the West Indies are therefore frequently known by the name of Drummers. Three or four of these noisy creatures will sometimes be impelled to answer one another, and cause

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such a drumming noise, that none but those who are very good sleepers can rest for them. What is most disagreeable, those who have not gauze curtains are sometimes attacked by them in their sleep. The sick and dying have their extremities attacked, and the ends of the toes and fingers of the dead are frequently stripped of both skin and flesh."

BLATTA (BLABERUS) GIGANTEA.

Plate XXXVI. fig. 2.

ORDER: Orthoptera. SECTION: Cursoria. FAMILY: Blattidæ.

GENUS. BLATTA, *Linn. &c.* (SUBGENUS: Blaberus, *Serville.*)

BLATTA (BLABERUS) GIGANTEA? Livida, thoracis clypeo maculâ quadratâ fuscâ, capite ferrugineo, elytris vittâ fuscâ longitudinali. (Long. Corp. cum elytris 2 unc. 3 lin.)

SYN. Blatta Gigantea? *Linn. Syst. Nat.* 1. 2. *p.* 687. 1. *Fabr. Ent. Syst.* 2. 6. 1. *Serville Revis. Orthopt. p.* 11. 1. *Oliv. Encyl. No.* 1.

HABITAT: Jamaica *(Drury).* America, Asia *(Fabricius).* Cayenne *(Serville).*

Head red brown, and withdrawn under the thorax, which covers it like a hood. Antennæ brown, and shorter than the body. Thorax thin like a scale, and of a dusky livid colour, the middle being brown, almost black. Wings and wing-cases livid and thin; the latter having a brown streak, half an inch long, running from the shoulders along the middle. Abdomen brown, with two points at the extremity. Legs brown, the shins being full of spines.

Fabricius, Serville, &c. have referred this figure to the Linnæan Blatta gigantea, with the description of which it indeed corresponds; although, as Drury observed, it is considerably smaller than that species. Drury states that this is one of the species which is very frequent in houses in the West Indies, and is called the Drummer, from the noise it makes by beating against the wainscot.

BLATTA (POLYPHAGA) ÆGYPTIACA?

Plate XXXVI. fig. 3.

ORDER: Orthoptera. SECTION: Cursoria. FAMILY: Blattidæ.

GENUS. BLATTA, *Linn. &c.* (SUBGENUS: Polyphaga, *Brullé.*)

BLATTA (POLYPHAGA) ÆGYPTIACA? Obscurè fusca, thoracis margine antico elytrorumque margine externo basali albidis. (Expans. Alar. 1 unc. 9 lin. fere.)

SYN. Blatta Ægyptiaca? *Linn. Syst. Nat.* 1. 2. 687. 2. *Gronov. Zooph.* 637. *t.* 15. *f.* 3. *Ahrens Fauna Ins. Eur. f.* 1. *tab.* 13. *Fabr. Ent. Syst.* 2. *p.* 6.

HABITAT: Jamaica *(Drury).* Egypt *(Linnæus).*

Head and antennæ dark brown. Thorax dark brown, and surrounded, except on the hinder side, with a cream-coloured margin. Wings and wing-cases brown and thin, the latter having a cream-coloured streak along the anterior margin, about a quarter of an inch long. Abdomen and legs brown. The thighs and tibiæ being furnished with many spines.

I have added a mark of doubt to the specific denomination of this insect on account of the different habitats given by Drury and Linnæus, although it agrees with the description of Blatta Ægyptiaca given by the latter author.

PENTATOMA FLAVICOLLIS.

Plate XXXVI. fig. 4.

ORDER: Hemiptera. SUBORDER: Heteroptera. SECTION: Geocorisa, *Latr.* FAMILY: Scutati, *Burm.* Pentatomidæ, *Leach.*

GENUS. PENTATOMA, *Latr.* Cimex, *Fabr. Burm.*

PENTATOMA FLAVICOLLIS. Thorace spinoso dentatoque, supra viridis, capite thoracisque antico scutelloque basi flavis. (Long. Corp 10½ lin.)

SYN. Cimex flavicollis, *Drury, App. vol.* 2.
Cimex albicollis, *Fabr. Ent. Syst.* 4. 98. 75. *Syst. Rh.* 160. 26.

HABITAT: Jamaica.

Head and antennæ dusky livid yellow. Thorax green, the fore part being livid, and the edges serrated; the sides terminating in two spines. The fore-part of the scutellum is livid, the hinder part green. Wing cases green, next the body, the extremities being transparent. Abdomen and legs livid, the under side the same; fore-legs tinged with green. Rostrum slender, extending to the hinder legs.

RAPHIGASTER INCARNATUS.

Plate XXXVI. fig. 5.

ORDER: Hemiptera. SUBORDER: Heteroptera. SECTION: Geocorisa, *Latr.* FAMILY: Scutati, *Burm.* Pentatomidæ, *Leach.*

GENUS. RAPHIGASTER, *Laporte.* Cimex, *Drury.*

RAPHIGASTER INCARNATUS. Supra sanguineus; capite scutelli maculis duabus, elytris unicâ, membranâque apicali nigris. (Long. Corp. 1 unc.)

SYN. Cimex incarnatus, *Drury, App. vol.* 2.
Cimex nigripes, *Fabr. Ent. Syst.* 4. 106. 101. *Syst. Rh.* 149. 17. (Edessa n.) *Wolff. Cim.* 1. 11. 11. *t.* 2. *f.* 11. *Stoll. Cim.* 2. 2. *f.* 10. *Donovan Ins. India, pl.* 14. *fig.* 1.

HABITAT: China.

Head small, and dark blue. Antennæ broken. Thorax deep orange, verged in front with blue. Scutellum orange, with the fore part blue. Rather more than half the wing-cases, next the body, orange, with a large blue spot in the middle of each; the extremities are of a brassy olive, and striated. Abdomen orange, with a border on its sides of cream, and blue spots; the under side of it being cream colour, with four blue spots on each side. Legs dark blue. Rostrum small and short, unless it has been broken off.

ARILUS SERRATUS.

Plate XXXVI. fig. 6.

ORDER: Hemiptera. SUBORDER: Heteroptera. SECTION: Geocorisa. FAMILY: Reduviidæ, *Leach.*

GENUS. ARILUS, *Hahn. Burm.* Prionotus, *Laporte.* Reduvius, *Fabr.*

ARILUS SERRATUS. Fuscus, elytris subferrugineis, rostro, antennis tibiisque fulvis, scutello cristato serrato. (Long. Corp. 1 unc. 3 lin.)

SYN. Cimex serratus, *Linn. Syst. Nat.* 2. 722. 62. *Fabr. Ent. Syst.* 4. 205. 42. *Syst. Rh.* 266. 2. (Reduvius s.) *Stoll. Cim.* 2. *t.* 1. *f.* 6.
Cimex carinatus, *Drury, App. vol.* 2.

HABITAT: St. Vincent *(Drury).* America *(Fabr.).*

Head very small, and black. Neck long and slender. Eyes small. Antennæ orange-coloured; as long as the insect. Thorax very small and black in front; the hind part exceeding large, and of a rusty dark brown, the middle rising circularly and erect, with many points like teeth on its edges; the sides being extended beyond the body, and appearing like angles with their points cut off. Corium of the wing-cases dusky brown, the membrane of a brassy olive colour. Abdomen black. Legs orange, the thighs being black; from the front of the head issues a slender orange-coloured beak, which reaches to the fore legs.

This large and remarkable species of winged bug is commonly known in the West Indies under the name of the Wheel-bug, and is stated by Messrs. Kirby and Spence to possess the power of communicating an electric shock to the person whose flesh it touches. "The late Major-General Davies, of the Royal Artillery, once informed me, that when abroad, having taken up this animal and placed it upon his hand, it gave him a considerable shock, as if from an electric jar, with its legs, which he felt as high as his shoulders; and dropping the creature, he observed six marks upon his hand where the six feet had stood." (Intr. to Ent. 1. 110.)

There appear to be several species confounded under the specific name of serratus. The one figured by our author is well distinguished by the colour of its rostrum and tibiæ, which are fulvous or orange-coloured. (Fabricious calls them yellow "flavis," and Burmeister red "rufis.") I have received this species from Valparaiso. Another species having brown tibiæ, of a narrower form, rather smaller than the preceding, and having fewer teeth upon the scutellar crest, is very abundant in Pennsylvania. It may be distinguished by the following character:—

Arilus denticulatus, *Westw.* fuscus, tibiis concoloribus, rostro antennisque obscurè rufescentibus cristâ scutellari circiter 10-denticulatâ. Long. Corp. 13 lin.
Habitat in America septentrionali (Comm. Dom. Peale).

The sting of these insects produced by the short and powerful proboscis is accompanied with very considerable pain. Mr. Smeathman informed Mr. Drury that he had been stung by the largest wasps of Africa, as well as by these bugs, and thought the pain inflicted by the latter much more severe, though the effect does not remain so long. The

pain is doubtless caused by that pungent volatile fluid which affects our smell so much when we catch those insects, with which they are abundantly supplied, and which they emit with considerable force.

CICADA MACULATA.

Plate XXXVII. fig. 1.

ORDER: Hemiptera. SUBORDER: Homoptera. FAMILY: Cicadidæ.

GENUS. CICADA, *Linn.*

CICADA MACULATA. Atra, thorace elytris alisque flavo maculatis. (Expans. Alar. 3 unc. 9 lin.)

SYN. Cicada maculata, *Drury, App. vol.* 2. *Germar in Silberm. Rev. Ent. Donovan Ins. China.*
Tettigonia maculata, *Fabr. Ent. Syst.* 20. 12. *Syst. Rhyng.* 37. 18.

HABITAT: China.

Upper Side. Head black. Eyes yellow brown, round, and projecting from the head a little; between them are two small orange spots. Antennæ small and short. Thorax black, with four orange spots in a row, placed across it, and behind them two others. Abdomen black, consisting of seven annuli or rings, besides the tail part, the last of which is edged with orange. Anus orange-coloured, and furnished with a bristle for ovipositon. Wings black, spotted, and streaked with orange; the anterior having a row of streaks along the external edges, and five distinct orange spots crossing the middle, near the shoulders: the posterior having a large orange patch on the abdominal edges, and a small round spot above it, with five small fainter ones placed along the external edges.

Under Side. Head black, terminating in a long slender beak, which extends between the legs, to the abdomen; two small orange spots are placed just below the eyes. Thorax with an orange spot on each side. Legs and abdomen black; the latter having six orange spots, three on each side. Wings as on the upper side.

The larger species of this family are often mistaken for locusts and grasshoppers, in consequence of the loud chirping noise which they make, and which is sometimes so strong that Mr. Smeathman had no doubt that it might be heard a mile. They are occasionally, he continues, very numerous in the woods, where they make the hills and vallies ring, continuing their noise for hours together; at other times, when they are more scarce, bursting forth only at intervals. This chirp or whistle is in general harsh and dissonant, though sometimes, like Thomson's Stock Dove, their note,

"Discordant heard alone, aids the full concert."

Amongst the planters and English settlers of the West Indies they are however called the razor-grinders, their noise being by these persons likened to that made in grinding knizes and razors. Kalm evidently alludes to these insects in his Tour of North America, where he says in some places they make so much noise, that unless two persons meeting together can speak louder than the insect can chirp, they cannot hear each other.

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CICADA STRIDULA.

Plate XXXVII. fig. 2.

ORDER: Hemiptera. SUBORDER: Homoptera. FAMILY: Cicadidæ.

GENUS. CICADA, *Linn.*

CICADA STRIDULA. Villosa prasineo-fusca, nigro-maculata, abdomine nigro; elytris griseis, maculis ovatis ante marginem posticum 7, hyalinis; alis luteis versus apicem nigris, omnibus margine latiori hyalino. (Expans. Alar. fere 3 unc.)

SYN. Cicada stridula, *Linn. Syst. Nat.* 1. 2. 706. 12. *Stoll. Cicada, fig.* 15. *Germ. in Thons. Arch.* 11. 2. 12. 19. *Silb. Rev. Eut.* 11. 76. 54.
Cicada capensis, *Linn. Syst. N.* 1. 2. 706. 13.
Cicada Catenata, *Drury, App. vol.* 2.

HABITAT: Cape of Good Hope.

Head short, thick, and of a yellowish brown, with a black stripe down the middle. Eyes round, and projecting. Ocelli distinct. Thorax yellow brown. Abdomen nearly black. Anterior wings yellow brown next the body, but darker in the middle; the external edges being transparent; above which is a row of transparent spots, placed between the tendons of the wings. Posterior wings yellowish, having a transparent border along the external edges, and a dark cloud placed at the upper corners. Legs yellow brown; rostrum extending between them, to the middle of the abdomen.

APHANA LANATA.

Plate XXXVII. fig. 3.

ORDER: Hemiptera. SUBORDER: Homoptera. FAMILY: Fulgoridæ.

GENUS. APHANA, *Burmeister.* Aphæna, *Guérin.* Cicada, *Drury.*

APHANA LANATA. Fusca, capitis cornu tenui, ano farinoso, elytris nigris apice rubris undique albo irroratis, alis fuscis albo latè marginatis. (Expans. Alar. 1 unc. 3 lin.)

SYN. Cicada lanata, *Drury, App. vol.* 2. (Exclus. Syn. *Linn.*)

HABITAT: Jamaica.

The colours of this insect appear to have been faded. Head red brown, having on the top a small moveable horn, like a bristle, which the insect can raise at pleasure. Eyes dark. Thorax and abdomen dark brown. Anus white. The ends of the anterior wings are red brown; from whence, to the shoulders, they appear of a dead black, spotted with small white spots; but when the insect was living, probably the black part was of a fine mazarine blue. The external edges of the posterior wings are transparent; the abdominal edges white, and the middle part black, spotted with white, like the superior. Breast, beak, and legs, red brown. Abdomen, on the under side the same, being edged with scarlet.

This insect has a white substance issuing from the anus resembling the downy part of a feather, or that which joins the quill.—Add. vol. 2.

SCOLIA? MUTILLÆFORMIS.

Plate XXXVII. fig. 4.

ORDER: Hymenoptera. SECTION: Fossores? FAMILY: Scoliidæ?

GENUS. SCOLIA? *Fabr. Latr.* Sphex, *Linn. Drury.*

SCOLIA? MUTILLÆFORMIS. Nigra, capite thoraceque fulvo pilosis, alarum apicibus fuscis. (Long. Corp. 7½ lin.)

SYN. Sphex mutillæformis, *Drury, App. vol.* 2.

HABITAT: Senegal.

Head and thorax red brown, and hairy. The former furnished with two jaws, and tongueless. Eyes and antennæ black, the latter shorter than the thorax. Wings transparent; the anterior being cloudy at their extremities, and along the anterior edges. Abdomen, and hinder part of the thorax, black and hairy. All the legs full of bristles; the hinder ones having two long spines at the tarsi and tibial joints. One of the sexes is much larger than the other.

Mr. Kirby (Monographia Apum Angliæ, Vol. II. p. 377.) has given this figure as a synonym of Andrena thoracica. This can however scarcely be correct, for not only does the locality given by Drury seem sufficiently to indicate a species distinct from our English insect, but the colour of the head is also different. Moreover, it appears to me that the description given by Drury, united to the curved antennæ which appear to be faithfully represented in the figure, and especially the character of the legs, are evidently intended for a fossorial rather than a melliferous Hymenopterous insect.

LEPISMA COLLARIS.

Plate XXXVII. fig. 5.

ORDER: Thysanura, *Leach.* Aptera, p. *Linn.* FAMILY: Lepismidæ.

GENUS. LEPISMA, *Linn.*

LEPISMA COLLARIS. Obscure plumbea, fasciâ collaris apiceque abdominis argenteo-niveis, caudâ triplici villosâ. (Long. Corp. cum seta interm. 12 lin.)

SYN. Lepisma collaris, *Fabr. Ent. Syst.* 2. 64. *No.* 5.
Lepisma saccharia, *Drury, App. vol.* 2. (nec *Linn.*)

HABITAT: Antigua (*Drury*). "In Americæ meridionalis insulis" (*Fabr.*).

Head small and hairy, being concealed beneath the thorax. The upper part shines like silver. Mouth of a greyish colour, and furnished with four palpi, whereof two are long and the other two short and thick. Eyes not to be discerned. Antennæ about half the length of the insect; small, and filiform, but full of joints. Thorax and abdomen dark lead-coloured, shining like polished metal; being furnished along their sides with short hairs. The former has a cream-coloured stripe crossing it from side to side; it is also margined. In some specimens, the middle part of the abdomen, from the thorax to the tail, is of a silvery white; but in others the last ring only is so. At the extremity of the abdomen are placed three tails, of equal lengths, like bristles, but very hairy. These tails are in length about one-third of the whole insect; and, when the creature is alive, are always carried in the position repre-

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sented in the figure. The middle one seems immoveable, the others are not. All the under part of the insect appears of a shining, silvery, white colour; and near the extremity of the abdomen are placed four little horny filaments, two on a side. Legs silvery. Thighs and tibiæ broad and thin.

MILESIA VIRGINIENSIS.

Plate XXXVII. fig. 6.

ORDER: Diptera. SECTION: Athericera. FAMILY: Syrphidæ, *Leach.*

GENUS. MILESIA, *Latrielle.* Musca, (*Drury*).

MILESIA VIRGINIENSIS. Fulva, thorace 2- abdomine 6- fasciato, hujus fasciis 1 et 2, 3 et 4, 5 et 6, lineâ longitudinali connexis. (Long. Corp. fere 1 unc.)

SYN. Musca Virginiensis, *Drury, App. vol.* 2.
Milesia ornata, *Fabr. Syst. Antl.* 188. *Wiedemann Ausseur. Zw. Ins.* 2. 106.

HABITAT: Virginia.

Eyes black. Front of the head cream-colour. Antennæ like short hairs. Thorax and abdomen yellow, with black rings. Wings transparent. Legs yellow, and furnished with small hooks at their extremities. Breast black, with yellow spots and patches. Ocelli distinct.

CÆLIOXYS? ANNULARIS.

Plate XXXVII. fig. 7.

ORDER: Hymenoptera. SECTION: Mellifera. FAMILY: Apidæ.

GENUS. CÆLIOXYS? *Latrielle.* Apis, *Drury.*

CÆLIOXYS? ANNULARIS. Atra, capite marginibusque posticis segmentorum abdominalium cinereis, antennis atris, pedibus fuscis. (Magn. Apis mellific.)

SYN. Apis Annularis, *Drury, App. vol.* 2.

HABITAT: New York.

Head ash-coloured. Eyes brown. Ocelli distinct. Tongue very distinct. Antennæ black, and the length of the thorax, which is black likewise. Abdomen black, with ash-coloured rings, both above and underneath, terminating in a sharp point. Legs brown; the fore-ones being nearly as long as the hinder.

STIZUS SPECIOSUS.

Plate XXXVIII. fig. 1.

ORDER: Hymenoptera. SECTION: Fossores. FAMILY: Bembecidæ.

GENUS. STIZUS, *Latr. Jurine.* Sphex, *Drury.* Vespa et Larra p. *Fabr.*

STIZUS SPECIOSUS. Ferrugineus, abdomine atro fasciis tribus interruptis flavis. (Long. Corp. fere 1 unc. 6 lin.)

SYN. Sphex Speciosus, *Drury, App. vol.* 2. (1773.)
Vespa tricincta, *Fabr. Ent. Syst.* 2. 254. 5. (1793.) *Syst. Piez.* 254. 5.

HABITAT: North America.

Head greenish brown: on the top are three little eyes. Mouth furnished with jaws. Eyes large, oblong, and dark brown. Antennæ shorter than the thorax. It has no tongue. Thorax greenish brown.

Anterior wings extending beyond the abdomen, being thin and diaphanous. Abdomen furnished with a sting, and entirely black, except the first three rings, which are party-coloured, and mixed with yellow; the middle one being surrounded with that colour. Legs dusky orange, but when living they were probably of a yellow colour. Breast black, but covered with hairs, making it appear of a greyish hue.

This is the largest and finest species of the genus to which it belongs. Drury, contrary to his usual practice, is silent as to its habitat, and Fabricius states America generally. I have received it from Mr. Titian R. Peale of Philadelphia. That it is identical with the Vespa tricincta of Fabricius I am enabled to state by an examination of the individual contained in the Banksian Collection, now belonging to the Linnæan Society of London, which was described by Fabricius.

TREMEX COLUMBA.

Plate XXXVIII. fig. 2.

ORDER: Hymenoptera. SECTION: Terebrantia. FAMILY: Siricidæ, *Leach*.

GENUS. TREMEX, *Jurine*. Sirex, *Linn. Drury*.

TREMEX COLUMBA. Fusca, abdomine nigro lateribus flavo-marginatis alis, nigris. (Long. Corp. 1 unc. 6 lin.)

SYN. Sirex Columba, *Linn. Syst. Nat.* 2. 929. 2. *Fabr. Ent. Syst.* 2. 105. 3. *Syst. Piez.* 49. 3.
Sirex cinctus, *Drury, App. vol.* 2.
Sirex pensylvanicus, *De Geer Mem.* 3. *pl.* 30. *f.* 13.

HABITAT: North America, New York.

Head and thorax brown orange, the former furnished with two jaws. Ocelli distinct. Antennæ 16-jointed, of the length of the thorax, which does not appear separated from the abdomen. Eyes narrow and oblong. Abdomen black, and fringed with yellow; being as broad and thick at the extremity as the middle. Wings dark brown (almost black) and narrow, but not folded. From the upper part of the abdomen, near the middle, issues a tube which covers, like a groove, a rough serrated bristle, being the instrument through which the creature ejects its eggs. Legs brown orange, having a strong tibial spur on each leg.

FORMICA RUBRIPES.

Plate XXXVIII. fig. 3.

ORDER: Hymenoptera. SECTION: Heterogyna. FAMILY: Formicidæ, *Leach*.

GENUS. FORMICA, *Auct*.

FORMICA RUBRIPES. Brunnea, capite nigro pedibusque brunneo-rubris. (Long. Corp. 9 lin.)

SYN. Formica rubripes, *Latr. Hist. Nat. Fourn. p.* 112.
Formica barbara, *Drury, App. vol.* 2. (nec *Linn.*)

HABITAT: Sierra Leone.

Antennæ small, filiform, and about the length of the thorax. Head very large, flattish, but rounded at top, and of a dirty black. Eyes small, round, and placed at the back part of the head.

Thorax small and brown. Abdomen the same colour, and smaller than the head, with a small erected scale placed between it and the thorax. Legs red brown, having a long tibial spur in the four hinder legs.

Drury referred this species to the Formica barbara of Linnæus, which is not only distinct in the colour of the head, which is red, but also in having two knots at the base of the abdomen, whence it belongs to the genus Myrmica.

The reader will find some interesting general details relative to the habits of the exotic species of the family to which this insect belongs, in the following observations which were published in the preface to the third volume, in the former edition of this work.

" The various species of *ants, cock-roaches, and other voracious vermin,* are so numerous as to be one of the greatest plagues the collector abroad has to encounter, insomuch that it is barely possible to preserve dried insects, and other animals, with the utmost care and the closest boxes, much less living ones, which require light and air: for as soon as caterpillars are brought out of the woods, and placed within doors, with an intention of breeding them, they seem to be, as in fact they are, out of the order of nature, and quickly fall victims to the rapacity of those agents whose province it is to remove animal or vegetable bodies, which having arisen to maturity, or lost the principles of life, are on their progress toward a slow dissolution, a state of useless inanimation or noxious putrescence. Indeed among these none are more useful in this point of view than the *ants;* but, considered as *noxious vermin,* and capable of destroying animals, or, in many instances, of preventing and frustrating human industry, we know perhaps of none more formidable. These insects, whether considered as the efficient servants of nature, keeping clean and wholesome the face of the creation, or as the ministers of Almighty Power preserving a due equality between animals and vegetables, perform, without exemption or reserve, his high behests. Like the angel of heaven, they walk steadily forward in the line ordained them, and spare neither magnitude nor beauty, neither the living nor the dead, but sweep away all kinds of animal substances with undeviating rigour and rapacious perseverance.

" Sometimes they proceed, like those I have mentioned in the preface to my first volume, driving all the inhabitants out of a town in a few hours, to a scene of which Mr. Smeathman was an eye-witness; and in other instances, as within the last twenty years, in some of the Caribbee Islands, like a slow but irresistible fire, they gradually, in two or three years, take possession of the land, and carry death and destruction to every kind of animals; so that not only pigeons and fowls, lambs and kids, but even calves and foals, which have been brought forth in the night, have been destroyed before the rising of the sun; and the inhabitants themselves, though they placed the posts of their beds in troughs of water, were driven out of them by these inevitable disturbers. This slow but enormous increase of ants in some of the sugar islands was unknown before the conclusion of the last peace; since which time they seem, in conjunction with some other insects, to have taken possession of many valuable sugar estates, and, by sucking the canes, have rendered

them incapable of yielding any of that rich juice from whence this vegetable salt is extracted.

" In consequence of this mischievous quality, estates which, by their usual produce, have cleared to the proprietors eight or ten thousand pounds a year, when overrun by these vermin, have not been able to pay the expense of cultivation, except the produce has been changed by planting cotton or indigo, which have been found to suffer much less from their depredations; but, unhappily, most of the planters were ruined before they could submit to give up the cultivation of sugar, which is by much the most profitable.

" It is not to be supposed, that hot countries are at all times infested to this degree. They never are, however, without an astonishing number of these insects, which no art, labour, or expense, can totally exclude from the dwellings of the inhabitants. The number of different species is not yet known, and is so great, added to the minuteness of most of them, that it probably never will be discovered with any degree of certainty. There are not less than fifteen or twenty species, which find their way into the houses. These are not only to be distinguished by their size, figure, and colour, but by their different properties. Some are near an inch long, from which, to that of being scarce visible to the naked eye, are various sizes. Some are long and slender, others short and thick; some are elegantly shaped and highly polished; while others are, according to vulgar apprehensions, deformed, armed with spines, and covered with bristly or coarse and rough skins. Some species also are black as the deepest jet: others of the deepest brown, or of different shades till they approach to yellow; and not a few are variegated, having some of the prismatic colours in full glow. They vary as much in their nature and dispositions: some destroy fresh collected plants; and, in spite of weights laid upon the books in which they are placed to dry, get in, cut the leaves and flowers in pieces, and carry them away. Others, of different species, attack all sorts of victuals, particularly sweet things, such as sugar and fruits. Mr. Smeathman has had large sugar-dishes emptied by these insects in one night, when the least opening has been left; and it is not easy to make any tin canister, or other vessel, close enough to exclude these insidious plunderers; so that the loss sustained in this article is often very great. Some of them will assail the side-boards, and cover every wine-glass that has had wine or punch left in it; nay, innumerable multitudes will even attack the liquors on your table, and, if you are not attentive, drown themselves in the very bowls and bottles before you. Some stragglers frequently disturb you by creeping over your skin, and interrupt your sleep or your meditations by biting, which, however, give pain but for a moment; while others, though of the smallest size, with a sort of malignant vengeance, creep under your clothes, and, by means of stings invisible to the unassisted eye, inject a most acrid venom, which causes a pain as sharp as a small spark of fire, lasting for some hours, and even a day or two after being stung, the pain of which is much increased by irritating the part. Some of the larger sorts also cause by their stings a pain which, for some moments, is scarcely less than that of a bee of the same size; but it

ceases in a few minutes, without leaving any inflammation behind. The different manners of this large and sagacious tribe of insects are, according to my friend's account, exceedingly various and amusing, but much too long for this occasion; neither would it be proper for me to enter farther into an account of them, as that gentleman purposes to treat minutely on their various histories in his Voyages and Travels: a book which, he informs me, is in some forwardness, and will doubtless afford great entertainment and information to the curious part of mankind."

RAPHIGASTER VALIDUS.

Plate XXXVIII. fig. 4.

ORDER: Hemiptera. SUBORDER: Heteroptera. SECTION: Geocorisa, *Latr.* FAMILY: Scutati, *Burm.* Pentatomidæ, *Leach.*

GENUS. RAPHIGASTER, *Laporte.*

RAPHIGASTER VALIDUS. Pallidus, capite, pustulis duabus pronoti et dentibus lateralibus obtusis, scutello (apice excepto) elytrisque chalybeis, abdominis lateribus nigro maculatis. (Long. Corp. 1 unc.)

SYN. Cimex variegatus, *Drury, App. vol.* 2.
Cimex validus, *Drury, App. vol.* 2. *(pl.* 45. *fig.* 6. *eadem). Klug. Burm. vol.* 2. *p.* 365.
Edessa Tarandus, *Fabr. Ent. Syst.* 4. 93. *Syst. Rhyng.* 147.

HABITAT: Jamaica.

Head dark mazarine blue, and small. Eyes and antennæ black. Thorax cream-coloured, with two large blue spots upon it; each of its sides being armed with a strong blue spine. Scutellum triangular, and dark blue, the extremity cream-coloured. Abdomen red, with black streaks crossing its margin. Hemelytra blue half way, the other half opake and brown. Wings membranaceous and brown. Rostrum black. Under side of the insect red (except the extremities of the legs, which are black), having four triangular black spots running down the middle, and some others placed on the sides.

This fine insect was noticed in the synoptical appendix to the second volume, under the name of Cimex variegatus, the same name having been also inadvertently applied to the insect figured in Vol. I. Pl. 45. Another figure of the same insect, but with the wings closed, is given in the third volume, Pl. 45. Fig. 6. in the synoptical appendix of which volume it is noticed, under the name of Cimex validus. It is therefore probable that our author was not aware of the specific identity of the two figures. To avoid the inconvenience arising from having two species bearing the same name, Cimex variegatus, I have adopted the name proposed in the third volume.

TETTIGONIA SANGUINEA.

Plate XXXVIII. fig. 5. Natural Size.—6. Magnified.

ORDER: Hemiptera. SUBORDER: Homoptera. FAMILY: Cercopidæ, *Leach.*

GENUS. TETTIGONIA, *Latr. Germ.* (nec *Fabr.*) Cicada, *Linn. Drury.*

TETTIGONIA SANGUINEA. Capite thoraceque luteo-fuscis, elytris sanguineis apice stramineis, alis fuscentibus. (Expans. Alar. 9 lin.)

SYN. Cicada sanguinea, *Drury, App. vol.* 2.

HABITAT: Jamaica.

Head yellowish brown. Antennæ small, and thread-like; being shorter than the thorax. Rostrum extending along the breast to the abdomen, exceedingly small like a hair. Thorax yellowish brown. Abdomen black. Hemelytra red, the tips being yellow. Wings blackish brown. Under side of the insect ash-coloured.

FORMICA BIHAMATA.

Plate XXXVIII. fig. 7. Natural Size.—8. Magnified.

RDER: Hymenoptera. SECTION: Heterogyna, *Latr.* FAMILY: Formicidæ, *Leach.*

GENUS: FORMICA, *Linn.*

FORMICA BIHAMATA. Nigra, thorace ferrugineo antice quadrispinoso, squamâ altissimâ spinis duabus arcuatis. (Long. Corp. 6 lin.)

SYN. Formica bihamata, *Drury, App. vol.* 2. *Fabr. Ent. Syst.* 2. 361. 49. *Syst. Piez.* 411. 66. *Latreille Hist. Nat. Fourm.* 127. *Oliv. Enc. Méth. Ins.* 6. 499.

HABITAT: Island of Johanna, near Madagascar.

Antennæ longer than the thorax, the first joint almost equal to the remainder. Eyes small, and placed very backward. Head black and small, armed with very strong and sharp jaws. Thorax brown, having on the fore part two spines, one on each side bending outwardly; on the top are likewise two more, bending towards the abdomen. The peduncular scale is very large and erect, standing very high, and branching at top into two hooks, which bend in opposite directions. Abdomen round, and larger than the head; the fore part being brown, the hinder black. Legs black, the hinder ones being longest.

VESPA ORIENTALIS.

Plate XXXIX. fig. 1.

ORDER: Hymenoptera. SECTION: Diploptera. FAMILY: Vespidæ, *Leach.*

GENUS. VESPA, *Linn. &c.*

VESPA ORIENTALIS. Ferruginea, abdomine fasciâ flavâ ante apicem utrinque bipunctatâ. (Long. Corp. 1 unc. 3 lin.)

SYN. Vespa orientalis, *Linn. Mant.* 540. *Fabr. Syst. Piez.* 254. 4.
Vespa turcica, *Drury, App. vol.* 3.

HABITAT: Smyrna *(Drury).* "In Oriente" *(Linn.).*

Front of the head yellow. Eyes brown. Antennæ the length of the thorax. Ocelli distinct. Jaws black. Tongue not to be discovered. Thorax and abdomen brown chesnut; the third and fourth rings of the latter yellow. Wings thin, but not transparent. Legs brown; the anterior with a single and the four posterior with two tibial spurs.

Drury observes of this and the next insect, that "they make nests like the mason-fly described in Vol. I. Pl. 44. Fig. 6." The correctness of this statement may however be questioned as regards both of the insects in question, which, from their evident relationship to the common English hornet (Vespa Crabro Linn.) must surely possess similar habits to those of that insect.

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SCOLIA 4-MACULATA.

Plate XXXIX. fig. 2.

ORDER: Hymenoptera. SECTION: Fossores. FAMILY: Scoliidæ.

GENUS. SCOLIA, *Fabr. Latr.* Sphex, *Linn.* Vespa, *Drury.*

SCOLIA 4-MACULATA. Hirta, nigra, fusco-pubescens, abdomine nigro maculis quatuor fulvis, alis obscuris. (Long. Corp. 1 unc.)

SYN. Scolia 4-maculata, *Fabr. Ent. Syst.* 2. 229. 4. *Syst. Piez.* 240. 5.
Vespa maculata, *Drury, App. vol.* 2.

HABITAT: Jamaica *(Drury)*. North America *(Fabr.)*.

Head brown. Antennæ the length of the thorax, which is also brown. Wings nearly transparent. Abdomen black, with four yellow spots placed on the upper side. Legs brown.

I have employed the Fabrician specific name in preference to that precedently employed by Drury, as being more appropriate, there being other species of the genus named 6-maculata and 2-maculata.

BOMBYLIUS PLUMIPES.

Plate XXXIX. fig. 3.

ORDER: Diptera. SECTION: Tanystoma. FAMILY: Bombyliidæ, *Leach.*

GENUS. BOMBYLIUS, *Linn. &c.*

BOMBYLIUS PLUMIPES. Flavido hirtus, alarum basi costâque brunneis, tarsis posticis basi lobatis. (Long. Corp. 5½ lin.)

SYN. Bombylius plumipes, *Drury, App. vol.* 2. *Wiedemann Auss. Zw. Ins.* 1. 351.

HABITAT: Jamaica.

Head brown; and from the mouth extends a very slender proboscis, through which the insect obtains its food; being almost as long as the whole body. Antennæ short, and like hairs. Wings transparent, but along the anterior edges brown. Legs long, the hinder ones furnished at the base of the tarsi with two remarkable flaps.

PEPSIS CŒRULEANA.

Plate XXXIX. fig. 4.

ORDER: Hymenoptera. SECTION: Fossores. FAMILY: Pompilidæ.

GENUS. PEPSIS, *Fabr. Latr.* Sphex, *Linn. Drury.*

PEPSIS CŒRULEANA. Nigra, alis cœrulescenti-nitidis, pedibus aurantiis. (Long. Corp. lin. 12.)

SYN. Sphex cœruleana, *Drury, App. vol.* 2.

HABITAT: Bight of Benin, Coast of Africa.

Head, antennæ, and eyes black. Ocelli distinct. It is tongueless, with four palpi. Jaws strong. Wings fine deep mazarine blue, not folded, but lying flat. Thorax and abdomen black. Legs orange-coloured; the fore ones being furnished with a single tibial spur, the rest having two that are rather long.

This insect, according to Mr. Smeathman, makes a clicking noise when it flies, like a rocket, which may be heard at twenty yards distance. It is a very strong and rapacious insect, and is often seen flying from bush to bush with a grasshopper in its claws at least twice its own size, and which is evidently destined to be deposited in its nest, and to become the food of the future progeny of the Pepsis.

" There is a species like this found in the West Indies, with orange antennæ and black legs; also another that is entirely black."—*Drury*.

MANTIS (THESPIS) PARVA.

Plate XXXIX. fig. 5.

ORDER: Orthoptera. SECTION: Cursoria. FAMILY: Mantidæ.

GENUS. MANTIS, *Linn.* SUBGENUS: Thespis, *Serville.*

MANTIS (THESPIS) PARVA. Pallidè olivaceo-fusca, prothorace longo cylindrico, pedibus gracilibus simplicibus. (Long. Corp. 1 unc. 4½ lin.)

SYN. Mantis parva, *Drury, App. vol.* 2. *Oliv. Encycl. No.* 48. *Serville Revis. Orthopt. p.* 28. (Thespis p.)
Mantis minuta, *Fabr. Ent. Syst.* 2. 24.?

HABITAT: America.

When this insect was living it was probably of a light green colour; but it is now entirely of a dusky olive. Head small. Eyes round, and placed at a distance from each other. Antennæ small, and thread-like, and about half the length of the insect. Thorax long and slender. Tegmina thin, narrow, and diaphanous, of the same length with the wings; but narrower, and placed at a little distance from them. Wings also thin and diaphanous, and when closed extending to the anus. Abdomen slender and rounded. Legs small and long, the hinder ones being formed rather for running than jumping; the fore ones having thread-like tarsi.

PEPSIS RUBRA.

Plate XXXIX. fig. 6.

ORDER: Hymenoptera. SECTION: Fossores. FAMILY: Pompilidæ.

GENUS. PEPSIS, *Fabr. Latr.* Sphex, *Linn. Drury.*

PEPSIS RUBRA. Corpore pedibusque nigro cyaneis, antennis nigris, alis rufis apice albis. (Long. Corp. 1 unc.)

SYN. Sphex rubra, *Drury, App. vol.* 2.

Pepsis speciosa, *Fabr. Ent. Syst.* 2. 217. 83. *Syst. Piez.* 215. 45. *Pal. Beauv. Ins. d'Afr. et d'Amer. Hym. Pl.* 2. *f.* 5.

HABITAT: Antigua (*Drury*). Saint Domingo (*Pal. Beauv.*).

Head and antennæ black; it has four palpi, no tongue, but strong jaws. Ocelli distinct. Thorax, abdomen, and all the legs deep mazarine blue, nearly black. Wings red; the tips being transparent. Legs furnished with spines at the tips of the tibiæ; the fore ones having only one, all the rest two.

Fabricius (Syst. Piez. 214. 33.) refers this figure to the Sphex cœrulea of Linnæus, which differs in having the wings ferruginous but black at the base (" basi nigræ," Linn.) and

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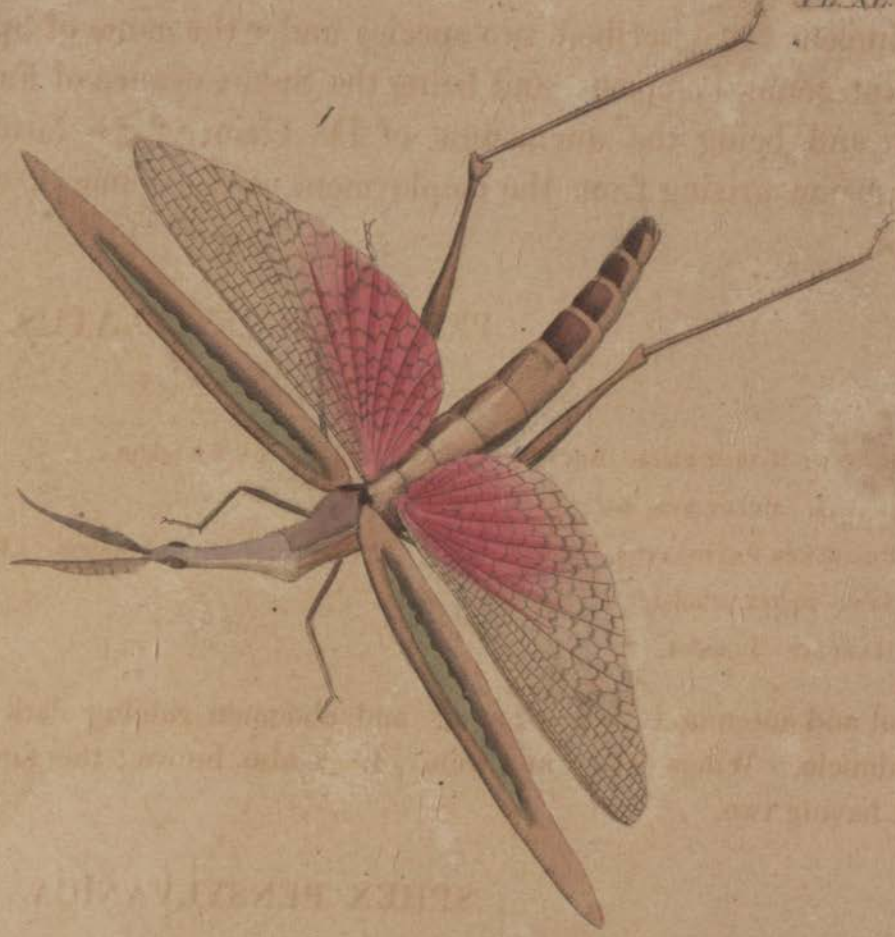

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white at the tips, and in the antennæ, being ferruginous at the tips. It is to be observed that Linnæus has described two species under the name of Sphex cœrulea, the first belonging to the genus Pelopæus, and being the Sphex cyanea of Fabricius; and the second, above noticed, and being the auripennis of De Geer, which latter name, in order to prevent all confusion arising from the employment of the name of cœrulea, it would be desirable to adopt.

PELOPÆUS PETIOLATUS.

Plate XXXIX. fig. 7.

ORDER: Hymenoptera. SECTION: Fossores. FAMILY: Sphegidæ.

GENUS. PELOPÆUS, *Latr. Fabr.* Sphex, *Drury.*

PELOPÆUS PETIOLATUS. Fuscus, thorace abdomineque nitidis brunneis. (Expans. Alar. 1 unc.)

SYN. Sphex petiolatus, *Drury, App. vol.* 2.

HABITAT: Jamaica.

Head and antennæ brown. Thorax and abdomen shining dark brown, and separated by a rather long peduncle. Wings brown and thin. Legs also brown; the fore ones having a single tibial spur, the rest having two.

SPHEX PENSYLVANICA.

Plate XXXIX. fig. 8.

ORDER: Hymenoptera. SECTION: Fossores. FAMILY: Sphegidæ.

GENUS. SPHEX, *Linn. Latr. &c.* Pepsis, *Fabr. Pal. Beauv.*

SPHEX PENSYLVANICA. Nigra, abdomine petiolato atro, alis subviolaceis. (Expans. Alar. 1 unc. 6 lin.)

SYN. Sphex Pensylvanica, *Linn. Syst. Nat.* 1. 2. 941. *Fabr. Syst. Piez.* 211. 15. (Pepsis v.) *Paul. Beauv. Ins. d'Afr. et d'Amer. Hym. pl.* 3. *fig.* 4.
Sphex cœrulea, *Drury, App. vol.* 2. (nec *Linn. Syst. N.*)

HABITAT: New York.

Head and antennæ black. Ocelli distinct. Mouth furnished with jaws, but no tongue to be discerned. Thorax and abdomen dark mazarine blue, almost black; the former is hairy, and separated from the latter by a slender peduncle. Wings brown and thin. Legs dark blue; the fore ones with a single tibial spur, all the rest having two.

TRUXALIS BRASILIENSIS.

Plate XL. fig. 1.

ORDER: Orthoptera. SECTION: Saltatoria. FAMILY: Locustidæ.

GENUS. TRUXALIS, *Fabr.* Gryllus p. *Drury.*

TRUXALIS BRASILIENSIS. Elytris pallide fulvescentibus, vittâ longitudinali mediâ virescenti, nigro irregulariter marginatâ, alis hyalinis dimidio anali roseo. (Expans. Alar. 3 unc. 9 lin.)

SYN. Gryllus brasiliensis, *Drury, App. vol.* 2.

HABITAT: Rio Janeiro, Brazil.

Head long, conical; the mouth seeming placed in the breast. Eyes oblong, situated at the upper part near the extremity of the head; there is also an ocellus placed between them on the under side, which is observable in all those whose heads are shaped like this. Antennæ as long as the head, and shaped like a three-edged sword. Thorax striped with green, brown, and white. Abdomen light brown, and streaked with black at top, but on the sides white. Tegmina light sand-coloured; having in the middle a narrow longitudinal line, indented with green and black. Wings transparent, and prettily dappled; being of a beautiful red colour next the body, which becomes fainter as it approaches the disk of the wings. Hind legs long, and formed for leaping; the others are short. Tibiæ furnished with sharp spines.

Fabricius refers this figure to the Truxalis nasutus Linn. which is found in Africa, and Mr. Smeathman also informed Mr. Drury that the species here figured is found in Africa, in the savannahs, and that its flight is very rapid. I have considered them on the contrary as specifically distinct.

PHLŒA CORTICATA.

Plate XL. fig. 2.

ORDER: Hemiptera. SUBORDER: Heteroptera.. SECTION: Geocorisa. FAMILY: Longilabres, *Latr.* Scutati, *Burm.*

GENUS. PHLŒA, *St. Farg. & Serv., Lap.* Cimex, *Drury.* Phlœocoris, *Burmeister.*

PHLŒA CORTICATA. Supra grisea, tuberculis multis rufo-fuscis subnitidis adspersa, subtus nigra appendiculis marginalibus griseis, laciniis capitis convergentibus. (Long. Corp. 11 lin.)

SYN. Cimex corticatus, *Drury, App. vol.* 2. *Laporte Hemipt, p.* 56. (Phlœa c.) *Burmeister Rh.* 2. 371. 1. (Phlœocoris c.) *Guérin Icon. R. An. Ins.* 55. *f.* 5.
Phlœa cassidoides, *St. F. & Serv. Enc. Méth.* 10. *p.* 111.
Aradus laminatus, *Kirby & Spence Introd. to Ent.* 3. 617. *&* 718.

HABITAT: Brazil.

Body exceedingly thin and flat in proportion to its breadth. Head triangular. Antennæ about one-fourth the length of the insect; the extremities being a little thicker than the other parts. Eyes small and round. Rostrum extending to the middle of the abdomen. All the parts exhibited in the plate are of a sandy olive colour, and serve as a shield or covering to the thorax, abdomen, legs, &c. which are hid beneath it. Scutellum large and triangular. Hemelytra entirely opaque and small, not covering the abdomen by a considerable space. Wings membranous. Legs smooth and dappled.

SCOLIA FLAVIFRONS?

Plate XL. fig. 3.

ORDER: Hymenoptera. SECTION: Fossores. FAMILY: Scoliidæ.

GENUS. SCOLIA, *Fabr. Latr. &c.*

SCOLIA FLAVIFRONS? Atra, fronte flavâ, abdomine maculis quatuor flavis. (Long. Corp. fere 2 unc.)

SYN. Scolia flavifrons, *Fabr. Syst. Piez.* 229. *No.* 5.
Sphex maculata, *Drury, App. vol.* 2.

HABITAT: Coast of the Morea.

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Head brown orange-coloured. Eyes oblong and dark brown. Antennæ thickest towards their extremities. Ocelli distinct. Mouth black, furnished with two jaws, but having neither tongue nor palpi. Thorax black, with a brown orange spot on the top, and two others next the head. Abdomen black and hairy; the second and third segments having two orange spots on them; the fourth, fifth, and sixth being ringed with orange. Under side black, with some orange hairs near the anus. Wings plain and flat, not folded, of a yellowish colour, and almost diaphanous. Legs black and hairy. Tarsi and articulations furnished with strong hairs and spines, which entirely surround them.

PELECINUS POLITURATOR.

Plate XL. fig. 4.

ORDER: Hymenoptera. SECTION: Pupivora. FAMILY: Evaniidæ?

GENUS. PELECINUS, *Fabr. Latr.* Ichneumon, *Drury.*

PELECINUS POLITURATOR. Niger, antennis annulo medio albo, tibiis posticis sericeo-dilatatis. (Long. Corp. 2 unc. 6 lin.)

SYN. Ichneumon Polyturator (errore pro politurator), *Drury, App. vol.* 2.
Pelecinus Polycerator, *Fabr. Syst. Piez.* 111. 1. *Say American Entomology, vol.* 1. *pl.* XV.

HABITAT: Jamaica *(Drury).* "Not uncommon in various parts of the United States" *(Say).* India *(Fabricius,* incorrectly).

Head small and black. Eyes oblong and dark brown. Antennæ black and filiform, having two yellow spots on them near their extremities. Ocelli distinct. Mouth with two jaws, but no tongue, and furnished with four palpi, two of which are long, slender, and filiform; the others are very short. Thorax black like pitch, and shining, as if finely polished; as is every part of the insect. Abdomen exceeding long and black, consisting of six articulations; the last being very short and pointed. Legs small and black; the hinder tibiæ being remarkably thick and strong in proportion to the other parts.

The late lamented Mr. Say, who may justly be regarded as the Linnæus of America, says of this truly singular insect, that its flight is slow and awkward, and when taken it endeavours to force the point of the abdomen through the skin of the hand, but its strength is not adequate to the task. The whole abdomen resembles a much elongated pedicle, from which the abdomen itself, or dilated portion, has been accidentally removed.

LOCUSTA OBSCURA.

Plate XLI. fig. 1.

ORDER: Orthoptera. SECTION: Saltatoria. FAMILY: Locustidæ.

GENUS. LOCUSTA. Gryllus (Locusta) *Linn.* Gryllus, *Fabr.* SUBGENUS: Locusta proper. Œdipoda, *Serv.*

LOCUSTA OBSCURA. Thorace lævi; elytris fuscis; alis disco rubro, fasciâ nigrâ, apice hyalinâ. (Expans. Alar. 2 unc. 3 lin.)

SYN. Gryllus obscurus, *Linn. Syst. Nat.* 1. 2. 701. 50. *De Geer Ins.* 3. 492. 8. *t.* 41. *f.* 4. *Fabr. Ent. Syst.* 2. 58. 47.

HABITAT: Cape Coast, Africa.

Antennæ brown and filiform, the length of the thorax. Head clay-coloured, rounded. Thorax smooth, brown, and angulated. Tegmina clay-coloured. Wings next the body red, and surrounded with a broad black bar running up to the anterior edge, the tips being transparent. Legs clay-coloured. Hinder femora broad, and prettily chequered on the outside, the inside being black. Posterior tibiæ red and spined.

GRYLLUS (PHYLLOPTERUS) MYRTIFOLIUS.

Plate XLI. fig. 2.

ORDER: Orthoptera. SECTION: Saltatoria. FAMILY: Gryllidæ (Locustaires, *Latr. &c.*)

GENUS. GRYLLUS. Sect. Gryllus (Tettigonia), *Linn.* Locusta, *Latr.* SUBGENUS. Phylloptera, *Serv.*

GRYLLUS (PHYLLOPTERUS) MYRTIFOLIUS. Thorace subtetragono, lævi; alis deflexis elytris longioribus, oviductu brevissimo recurvo. (Expans. tegm. 1 unc. 6 lin. Alar. 2 unc.)

SYN. Gryllus Myrtifolius, *Linn. Syst. Nat.* 1. 2. 696. 18. *Fabr. Ent. Syst.* 2. *p.* 34. *De Geer Mem. vol.* 2. *pl.* 41. *f.* 2. *Stoll. Sauter. pl.* a. 5. *fig.* 16. *Serville Revis. Orth. p.* 45.

HABITAT: New York *(Drury)*, America *(Fabr. &c.)*.

Antennæ small and filiform. Head dusky yellow. Thorax and abdomen brown, but when the insect was living were probably green; the former has a yellow stripe on each side. Tegmina green, and narrowing towards the tips. Wings thin, transparent, and of a greenish hue. Legs green; the hinder ones being very long, with the tibiæ spined.

LOCUSTA (RUTIDODERES) CENTURIO.

Plate XLI. fig. 3.

ORDER: Orthoptera. SECTION: Saltatoria. FAMILY: Gryllidæ (Locustaires, *Latr. &c.*)

GENUS. LOCUSTA. Gryllus (Locusta), *Linn.* Acrydium, *Latr.* SUBGENUS: Rutidoderes, *Westw.*

LOCUSTA (RUTIDODERES) CENTURIO. Pallidè olivaceo-fulvescens, elytris nigro numerosè punctatis, alis sanguineis margine nigro et interno nigro tesselatis. (Expans. Alar. 3 unc. 3 lin.)

SYN. Gryllus Centurio, *Drury, App. vol.* 2.

HABITAT: The Bay of Honduras, America.

Head dusky olive brown. Antennæ yellow, the tips black. Eyes red brown. Thorax olive brown, having a sharp indented ridge on the top, and one on each side; that on the top being black. Abdomen dark brown. Tegmina pale olive, spotted all over with darker spots of various shapes. Wings scarlet; the edges, except the abdominal, black; which, at the tips, and along the external edges, forms a kind of lattice work, breaking in upon the black division. Legs yellowish brown, the hinder tibiæ being spinose; tarsi with a cup-like pulvillus between the claws.

Gryllus reticulatus (Fabr. sp. Ins. 1. p. 362. No. 7.) figured by Donovan in his Insects of India, Pl. 12. Fig. 1., and said to be from Bengal, is very closely allied to, if indeed it be not identical with, the species here figured.

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LOCUSTA (PHYMATEA) PUNCTATA.

Plate XLI. fig. 4.

ORDER: Orthoptera. SECTION: Saltatoria. FAMILY: Gryllidæ (Locustaires, *Latr. &c.*)

GENUS. LOCUSTA. Gryllus (Locusta), *Linn.* Acrydium, *Latr.* SUBGENUS: Phymateus, *Thunberg.*

LOCUSTA (PHYMATEA) PUNCTATA. Thorace verrucoso atro, elytris atris flavo punctatis, alis atris, abdomine rufo annulato. (Long. Corp. cum alis claus. 2 unc. 9 lin.)

SYN. Gryllus punctatus, *Drury, App. vol.* 2. *Fabr. Ent. Syst.* 2. 51. 19. *Thunberg Mem. Acad. Imp. St. Petersb. p.* 258. *Stoll. Sauter. pl.* 7. b. *f.* 24. A. *Donovan Ins. India, pl.* 12. *fig.* 2.

HABITAT: East India.

Antennæ black, and longer than the thorax. Eyes small, round, and red brown. Head black at top, the middle being yellow; the lower part, with the mouth, black. Thorax rough and margined, full of spines and tubercles, both at top and on the sides; the former being black, the latter yellow. Breast black. Abdomen the same, ringed with red. Tegmina black, prettily spotted with yellow; the spots next the tips being smallest. Wings entirely black. Anus red. Legs black; the hinder thighs being marked on the outside with yellow.

LOCUSTA CŒRULEA.

Plate XLII. fig. 1.

ORDER: Orthoptera. SECTION: Saltatoria. FAMILY: Locustidæ.

GENUS. LOCUSTA. Acrydium, *Latr.* Œdipoda, *Serv.*

LOCUSTA CŒRULEA. Obscurè viridis, alis posticis hyalinis cœruleis, angulo externo nigro, femoribus medio flavis. (Expans. Alar. 1 unc. 3 lin.)

SYN. Gryllus cœruleus, *Drury, App. vol.* 2.

HABITAT: Calabar, Western Coast of Africa, 6° North L.

Head dark dirty green. Antennæ ——— ? Thorax dirty green and smooth, without any tubercles. Tegmina dark green, and opake. Wings thin and blue; the tips being much darker. Abdomen dark green. Legs the same, the hinder femora striped on the outside with yellow and light green, but on the inside entirely yellow; the tips being black.

LOCUSTA (RUTIDODERES) MILES.

Plate XLII. fig. 2.

ORDER: Orthoptera. SECTION: Saltatoria. FAMILY: Gryllidæ (Locustaires), *Latr. &c.*

GENUS. LOCUSTA. Gryllus (Locusta), *Linn. &c.* Acrydium, *Latr.* SUBGENUS: Rutidoderes, *Westw.*

LOCUSTA (RUTIDODERES) MILES. Fusca, capitis lineis duabus marginalibus margineque postico thoracis flavis, elytris brunneis, alis nigris maculis duabus magnis sanguineis. (Expans. Alar. 3 unc. 9 lin.)

SYN. Gryllus Miles, *Drury, App. vol.* 2.

HABITAT: Bay of Honduras, America.

Head green. Face striped on each side with yellow. Antennæ black. Thorax dark green; posterior edges yellow. Abdomen black, but when the insect was living, probably green. Tegmina entirely red brown. Wings black, with a scarlet patch near the tips, running from the anterior almost

to the posterior edges; another considerable part of the wings is likewise scarlet, running from the body to the middle, and from thence to the abdominal corners; the posterior and anterior edges being black. Legs dark green, almost black, and variously spotted with yellow: the fore and middle ones having a spot on each femur and tibia, the hinder ones having three on each femur, and two on each tibia.

GRYLLUS (GRYLLACRIS) TESSELATUS.

Plate XLII. fig. 3.

ORDER: Orthoptera. SECTION: Saltatoria. FAMILY: Gryllidæ.

GENUS. GRYLLUS (Locusta), *Latrielle.* SUBGENUS: Gryllacris, *Serville.*

GRYLLUS (GRYLLACRIS) TESSELATUS. Fusco-fulvescens, alis diaphanis nigro undique tesselatis. (Expans. elytr. 2 unc. 6 lin. Alar. 3 unc.)

SYN. Gryllus tesselatus, *Drury, App. vol.* 2.
Gryllacris maculicollis ♂ ? *Serville Revis. Orthopt. p.* 42.

HABITAT: Island of Johanna, near Madagascar.

General colour brownish yellow. Head smooth. Eyes rather prominent and dark brown, with a whitish streak between them. Antennæ the length of the insect. Mouth furnished with four palpi, knobbed at the extremities. Thorax margined, and a little indented. Scutellum, which is not seen when the wings are closed, whiteish and triangular. Tegmina thin, and full of tendons. Wings nearly diaphanous, and prettily speckled with cross marks in a zigzag manner. Legs strong; the hinder ones formed for leaping. Tibiæ armed with spines, pointing downwards; those on the hinder ones being shortest. Abdomen very singularly formed, the last segment terminating in a kind of horny beak which curls inwards, but widens and expands at the extremity, so as to appear like a knob or club; and close above it, but on the upper part of the abdomen, are four filaments about the size of the antennæ; two of them being longer than the other, extending to the very extremity of this part. (See Fig. IV.)

The antennæ in this subgenus are of very great length, being many times longer than the whole body. The specimen, therefore, figured by Drury was evidently mutilated in these organs.

ACHETA (SCHIZODACTYLA) MONSTROSA.

Plate XLIII. fig. 1.

ORDER: Orthoptera. SECTION: Saltatoria. FAMILY: Achetidæ.

GENUS. ACHETA, *Fabr.* Gryllus, *Latr.* SUBGENUS: Schizodactylus, *Brullè.*

ACHETA (SCHIZODACTYLA) MONSTROSA. Elytris alisque caudatis convolutis, corpore luteo-fusco punctis nigris. (Long. Corp. 1 unc. 9 lin.)

SYN. Gryllus monstrosus, *Drury, App. vol.* 2. *Fabr. Ent. Syst.* 2. 29. 2. (Acheta m.)
Schizodactylus monstrosus, *Aud. & Brullé Hist. Nat. Ins. tom.* ix. *s. g.* 24. *Donovan Ins. India, pl.* 12. *fig.* 3.

HABITAT: India *(Fabricius).*

Antennæ considerably longer than the body, filiform. Mouth furnished with strong jaws, and four palpi; two of which are very long. General colour dusky olive brown. Wings and tegmina extending

as far beyond the body as its own length, and curling in a most singular manner, being very curiously folded together. Body with two short tails placed at its extremity. Legs longer than usual with insects of this kind; each of the thighs being furnished with spines, and also the tips of the tibiæ. Tarsi four-pointed, besides the claws; those of the fore and middle legs having on each side two small appendages like flaps. Hinder tarsi furnished on each side with five of these flaps, some of which appear moveable, others fixed, as represented in the plate.

ACHETA MEMBRANACEA.

Plate XLIII. fig. 2.

ORDER: Orthoptera. SECTION: Saltatoria. FAMILY: Achetidæ.

GENUS. ACHETA, *Fabr.* Gryllus Acheta, *Linn.* Gryllus, *Latr.*

ACHETA MEMBRANACEA. Luteo-fusca, pronoti annulis duobus nigris, alis corpore longioribus, tarsis posticis quinque spinosis. (Long. Corp. 2 unc. 3 lin.)

SYN. Gryllus membranaceus, *Drury, App. vol.* 2.

HABITAT: Bay of Honduras, Musquito Shore.

Antennæ long, filiform. General colour yellowish brown. Thorax with two rings, almost black. Wings extending beyond their cases, terminating in two tails that are folded; each representing a two-edged sword. Abdomen furnished with two bristles. At the tips of the hinder tibiæ are placed five spines, one being quite small; the middle ones have four, that are small; and the fore ones one.

From the information furnished to Mr. Drury by Mr. Smeathman we learn that the children in Africa are, at the proper season, very busily employed digging out of the ground the females, when full of eggs, of a species exactly the size and form of this, on which they make an agreeable repast, roasting generally the whole animal, but eating only the eggs, which are contained in a bag, and resemble part of the roe of a large fish, deeming it very delicate food. These, like the European crickets, make a continual and noisy chirping all day long; and the open parts of the country are never without this music, which ceases neither night nor day. Some sing only in the day, others only in the night, and others again are never silent. Of those which sing only in the night, one small species, about the size of the Gryllus Campestris of Linnæus, sallies out of its retreat early in the evening, making so loud and shrill a chirping that it may be said to pierce the ear; and, as certainly as it sings within doors, it silences a whole company. It fills a large room so completely with its note, which is something like the sound caused by rubbing a tobacco-pipe round the edge of a wine-glass, that those unaccustomed to it cannot tell how to direct their search after it. When they are looking for it, the noise will sometimes cease for half a minute, and begin again, when the searchers will be as much at a loss as ever. The black people, however, who have perhaps the most accurate ears in the world, readily find them, and generally without mercy put an end to their lives and their notes together. Different species sing their wild notes among the distant banks, and are heard in the rivers through the mangroves, though those trees often form a thick wood between the navigable

parts of the river and the dry land of a quarter or half a mile deep. The mountains and the woods also echo with them all the night long, and the full concert is very distinctly heard on board the ships, during a calm night, as they lie at their usual anchorages in the bays and creeks on the sea coasts.

LOCUSTA (RUTIDODERES) DUX.

Plate XLIV.

ORDER: Orthoptera. SECTION: Saltatoria. FAMILY: Gryllidæ (Locustaires, *Latr. &c.)*

GENUS. LOCUSTA. Gryllus (Locusta), *Linn.* Acrydium, *Latr.* SUBGENUS: Rutidoderes, *Westw.*

LOCUSTA (RUTIDODERES) DUX. Thorace carinato scabro; elytris viridibus, alis rufis fusco-maculatis. (Expans. 7 unc. 9 lin.)

SYN. Gryllus dux, *Drury, App. vol.* 2. *Oliv. Encycl. Méth. No.* 4. (Acrydium D.) *Fabr. Ent. Syst.* 2. 47. 4. *Serville Revis. Orthopt.* 92.

HABITAT: Bay of Honduras (*Drury*). Brazil (*Serville*).

Head dusky yellowish olive. Eyes prominent. Antennæ black, and of equal thickness throughout: consisting of twenty-seven articulations, being a little longer than the thorax, which is of a dusky olive, and ending upwards in a sharp ridge, which is dentated and uneven. Tegmina dusky green, with a great many faint dark spots on them. Wings red, and edged with black; having a great number of dark spots on them of different shapes and sizes, many of which appear like beards of arrows. Abdomen large and green. Thighs reddish brown, chequered with white. Legs the same, the spines being black.

LIBELLULA LUCIA.

Plate XLV. fig. 1.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach.*

GENUS. LIBELLULA, *Auct.*

LIBELLULA LUCIA. Thorace olivaceo lineis duabus lateralibus apiceque flavis, alis hyalino-subflavis, strigâ subcostali maculâque versus basin fasciâque triangulari mediâ fuscis, stigmate albo, nigro terminato. (Expans. Alar. 2 unc.)

SYN. Libellula Lucia, *Drury, App. vol.* 2.
Libellula variegata, *Fabr. Ent. Syst.* 2. 382. 40. (nec *Linn. Syst. Nat.* 904. 18. ex Indiis.) *Pal. Beauv. Ins. d'Afr. et d'Amer. Neur. pl.* 2. *fig.* 4.

HABITAT: Sierra Leone.

Front of the head green. Eyes contiguous. Thorax dark green; being striped obliquely on the sides with two yellow streaks, and another on the top. Abdomen yellowish green, with two dark stripes running longitudinally on the sides. Legs dark green. Wings transparent, with a slender white streak near the tips of each, and a small black spot joining thereto, which are placed on the anterior edges; from the small edges, near the middle of each wing, a small dark cloud arises that crosses the wings, those of the superior running lowest. Near the body another small cloud is placed, being largest and strongest in the superior wings; the fore part of which is embellished with two slender black streaks running parallel, and near to the anterior edges.

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AGRION CAIA.

Plate XLV. fig. 2.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach*. SUBFAMILY: Agrionides.

GENUS. AGRION, *Fabr*. Calepteryx, *Leach*. Libellula p. *Drury*.

AGRION CAIA. Cuprea, abdomine nigro, alis hyalinis basi sanguineis, posticis etiam maculâ parvâ apicali sanguineâ. (Expans. Alar. 2 unc. 3 lin.)

SYN. Libellula Caia, *Drury, App. vol.* 2.

HABITAT: South America.

Front of the head blueish black. Eyes distant. Thorax copper gold-coloured. Abdomen black and slender. Legs black. Wings transparent, but next the body are of a fine lively red; the posterior having a small spot of that colour placed at their tips.

This insect is nearly allied to Agrion Brightwelli, Kirby (Linn. Trans. vol. 14. t. 3. fig. 5.) which is also an inhabitant of Brazil.

LIBELLULA MARCIA.

Plate XLV. fig. 3.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach*.

GENUS. LIBELLULA, *Auct*.

LIBELLULA MARCIA. Cœrulea aut ænea nitida, alis albido-flavis, anticis maculis duabus apiceque fuscis, posticis strigis duabus basalibus, fasciâ undatâ anali, maculis tribus apiceque fuscis, basi flavis. (Expans. Alar. 2 unc. 9 lin.)

SYN. Libellula Marcia, *Drury, App. vol.* 2.
Libellula Murcia, *Fabr. Ent. Syst.* 2. 376. 11.

HABITAT: The Island of Johanna, near Madagascar.

Head black. Eyes contiguous. Thorax and abdomen dark blue, but now much faded. Wings transparent and of a yellowish hue, with a small dusky cloud on each tip. The anterior having two small brown spots (almost black) on each; one at the middle of the anterior edge, the other near the body. Posterior wings broad and deep; the anterior edges next the body being finely ornamented with dark brown spots and clouds, that extend along that part for about half an inch: two small dusky spots are placed near the centre of each; and at the abdominal corners is a long waved spot of a fine dark brown, extending along the posterior edges; the space between it and the anterior edges being of a deeper yellow than the other parts of the wings.

LIBELLULA DOMITIA.

Plate XLV. fig. 4.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach*.

GENUS. LIBELLULA, *Auct*.

LIBELLULA DOMITIA. Luteo-rufescens, abdomine maculis dorsalibus flavis, alis fulvis stigmate nigricanti. (Expans. Alar. 1 unc. 9 lin.)

SYN. Libellula Domitia, *Drury, App. vol.* 2.

HABITAT: Jamaica.

Front of the head yellow. Eyes contiguous. Thorax and abdomen pale reddish brown; the former striped obliquely with green on its sides, the latter spotted with yellow on the top. Legs dusky yellowish green. Wings brownish yellow, with a small dark streak (almost black) placed on the anterior edges of each, near the tips.

AGRION TITIA.

Plate XLV. fig. 5.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach*. SUBFAMILY: Agrionides.

GENUS. AGRION, *Fabr.* Calepteryx, *Leach.* Libellula p. *Drury.*

AGRION TITIA. Atra; dimidio basali alarum anticarum fusco, plagâ magnâ internâ sanguineâ, apice fusco; posticis fuscis maculâ hyalinâ subapicali. (Expans. Alar. 2 unc. 6 lin.)

SYN. Libellula Titia, *Drury, App. vol.* 2.

HABITAT: Bay of Honduras.

Head, thorax, and abdomen black. Eyes distant. Legs black. Anterior wings next the body red; which is surrounded, except on the posterior edges, with dark brown, occupying half the wings; the other half is transparent, with a dusky spot at the tips. When the insect is placed on a dark ground, the transparent parts of the wings appear to be surrounded with a small narrow edging of a grey colour. Posterior wings dark brown, with a transparent spot on each, situated about an eighth of an inch from the tips.

LIBELLULA VARIEGATA.

Plate XLVI. fig. 1.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach.*

GENUS. LIBELLULA, *Linn. &c.*

LIBELLULA VARIEGATA. Alis flavis fusco maculatis et undulatis, posticis versus apicem maculâ magnâ fuscâ, puncto flavo; apice albo. (Expans. Alar. 3 unc.)

SYN. Libellula variegata, *Linn. Am. Acad.* 6. 412. 86. *Syst. Nat.* 1. 2. 904. 18.
Libellula Histrio, *Fabr. Mant. Ins.* 1. 337. 24. 10.
Libellula Indica, *Fabr. Ent. Syst.* 2. 376. *Guérin Icon. R. An. Ins. pl.* 60. *fig.* 1.
Libellula Arria, *Drury, App. vol.* 2.

HABITAT: China, India.

Front of the head black. Eyes contiguous. Thorax and abdomen black. Anterior wings transparent for about two-fifths next the extremities, having a small black streak on the anterior edges near the tips; the remaining part of these wings dark yellow, with a broad, irregular, dark brown bar crossing the middle, and a spot of the same colour placed between that and the body. Posterior wings very deep, and of the same dark yellow with the anterior, except the tips, which are transparent; and joining thereto is a large dark brown patch, with an oval yellow spot near its centre: an irregular, waved, dark brown bar runs along the posterior edges, beginning at the abdominal corners and ending about the middle of the wings: another waved bar runs along the anterior edges, beginning at the body and ending also at the middle of the wings; the extremities of the two bars nearly meeting, or joining together.

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LIBELLULA FULVIA.

Plate XLVI. fig. 2.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach.*

GENUS. LIBELLULA, *Linn. &c.*

LIBELLULA FULVIA. Luteo-testacea; alis fulvescentibus strigâ subcostali basali fuscâ stigmateque fusco. (Expans. Alar. 2 unc. 4½ lin.)

SYN. Libellula Fulvia, *Drury, App. vol.* 2.

HABITAT: China.

Front of the head dark yellow. Eyes contiguous. Thorax and abdomen tawny orange, the former being of a pale clay colour underneath. Wings dark tawny orange; and on the anterior edges of each, next the body, runs a narrow dark brown streak, about half an inch long: on the same edges also, near the tips, is another small streak, appearing of a dark brown colour when the insect is placed on a white ground, but when placed on a dark one is of a light clay colour: the posterior edges, next the abdominal corners, are also dark brown.

LIBELLULA TULLIA.

Plate XLVI. fig. 3.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach.*

GENUS. LIBELLULA, *Auct.*

LIBELLULA TULLIA. Cœruleo-nigra, alarum dimidio basali fusco, apice cinerascenti-hyalino stigmate nigro. (Expans. Alar. 1 unc. 9 lin.)

SYN. Libellula Tullia, *Drury, App. vol.* 2.

HABITAT: Bombay.

Head black. Eyes contiguous. Thorax and abdomen black; but when the insect was living, were probably mazarine blue. About three-fifths of the wings, next the body, are of a very dark brown; the remainder being grey, almost transparent, with a small streak on the anterior edges of each, near the tips.

LESTES PAULINA.

Plate XLVI. fig. 4.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach.* SUBFAMILY: Agrionides.

GENUS. LESTES, *Leach.* Libellula p. *Drury.*

LESTES PAULINA. Thorace griseo, lineis nigris, abdomine nigro griseo annulato; alis hyalinis apice fuscis, stigmate nigro. (Expans. Alar. 2 unc. 6 lin.)

SYN. Libellula Paulina, *Drury, App. vol.* 2.

HABITAT: Bay of Honduras.

Head black. Eyes distant. Antennæ very short and thick. Thorax grey, and striped obliquely on the sides with black. Abdomen black, long, and slender; each articulation being grey. Legs grey, being striped at top with black. Wings transparent, except at the tips, where they are of a very dark brown; having a small black spot placed on the anterior edges of each near their extremities.

LIBELLULA AXILENA.

Plate XLVII. fig. 1.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach*.

GENUS. LIBELLULA, *Auct.*

LIBELLULA AXILENA. Capite maculis 5 albis, thoracis dorso lateribusque virescentibus, abdominè luteo dorso fusco; alis albis hyalinis strigâ parvâ subcostali basali, margineque tenui (pone medium) nigris stigmate albo. (Expans. Alar. 3 unc. 6 lin.)

SYN. Libellula Lydia, *Drury, App. vol.* 2. (nec *vol.* 1. *pl.* 47. *fig.* 1.)

HABITAT: Virginia.

Mouth white. Eyes contiguous. Antennæ short and small, but distinct and plain when viewed through a microscope. On the back part of the head are situated five white spots. Thorax golden brown at top, the sides being of a pale green. Abdomen black at top, the sides being of a tawny orange; beneath pale green. Wings transparent; each having a very narrow dark brown border, beginning at the middle of the anterior edges and running round the tops, where it ends: a very narrow black streak also is placed near these edges, close to the body, from whence it seems to issue, being about a quarter of an inch in length.

Our author having inadvertently applied the same name to this handsome species which he had given to that figured in vol. 1. pl. 47. fig. 1, I have been compelled to give this a new specific denomination.

LIBELLULA EPONINA.

Plate XLVII. fig. 2.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach.*

GENUS. LIBELLULA, *Auct.*

LIBELLULA EPONINA. Alis flavescentibus fasciis subtribus nigris. (Expans. Alar. 2 unc. 6 lin.)

SYN. Libellula Eponina, *Drury, App. vol.* 2. *Fabr. Syst. Ent.* 2. 382. *No.* 39.

HABITAT: Boston, New England (*Drury*). Carolina (*Fabr.*).

Mouth white. Eyes contiguous. Thorax and abdomen dark brown, the latter being clouded with black. Wings of a yellowish hue, each having two dark brown bars crossing them, one a little distance from the tips, the other near the middle of the wing; between the latter and the body is placed a dark brown spot with a streak above it, those on the inferior wings being largest and most distinct.

LIBELLULA PORTIA.

Plate XLVII. fig. 3.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach.*

GENUS. LIBELLULA, *Auct.*

LIBELLULA PORTIA. Cœrulescenti-nigra, alarum dimidio antico fusco-cœrulescenti nitido, postice bi-emarginato. (Expans. Alar. 1 unc. 9 lin.)

SYN. Libellula Portia, *Drury, App. vol.* 2.
Libellula marginata, *Pal. Beauv. d'Afr. et d'Amer. Neur. pl.* 2. *fig.* 5. *Fabr. Ent. Syst.* ii. *p.* 380.

HABITAT: Sierra Leone.

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Head black. Eyes contiguous. Thorax and abdomen blue. Wings partly dark brown (almost black) and transparent, the anterior edges from the body to the tips being dark brown, and the posterior edges transparent. Posterior wings longest, a circumstance observable only in those whose wings next the body are broad and deep.

LIBELLULA SOPHRONIA.

Plate XLVII. fig. 4.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach.*

GENUS. LIBELLULA, *Auct.*

LIBELLULA SOPHRONIA. Fusca-rufescens, alis fulvescentibus apice hyaliuis. (Expans. Alar. 2 unc. 7½ lin.)

SYN. Libellula Sophronia, *Drury, App. vol.* 2.

HABITAT: China.

Head pale clay-coloured. Eyes contiguous. Thorax and abdomen dark brown, the former being of a pale clay colour underneath. Wings finely reticulated, and of a brownish yellow, with a transparent spot at the tips; a small narrow black streak is also placed near the anterior edges of each, appearing to issue from the body, being about half an inch in length.

LESTES LUCRETIA.

Plate XVIII. fig. 1.

ORDER: Neuroptera. SECTION: Subulicornes. FAMILY: Libellulidæ, *Leach.* SUBFAMILY: Agrionides.

GENUS. LESTES, *Leach.* Libellula p. *Drury, &c.*

LESTES LUCRETIA. Thorace fusco vittis pallidis, abdomine cœruleo longissimo; alis reticulatis nubilâ apicali. (Long. Corp. 6 unc. Expans. Alar. 5 unc.)

SYN. Libellula Lucretia, *Drury, App. vol.* 2.
Agrion linearis, *Fabr. Ent. Syst.* 2. 388. 5. *Sulzer Hist. Ins. t.* 24. *fig.* 1.

HABITAT: Cape of Good Hope, *Dr. Fothergill (Drury).* India, *Dr. Fothergill (Fabricius).*

Eyes very large and globular, projecting as it were from the head, and placed at a distance from each other. Antennæ rather long and distinct, resembling a small fibre issuing from a thick stalk. Ocelli distinct. Thorax probably dark blue when the insect was living, but being now faded, and appearing of a dead black, it is also striped with white on the sides. Wings reticulated and transparent, the superior being tipped with white, and the inferior having a small black streak on the anterior edges, near the tips. Abdomen uncommonly long, being five inches and a half, and of a dark shining mazarine blue. Legs remarkably short for the size of the insect.

"In the 4th volume of Seba's Museum, Tab. 68, are two figures somewhat like this (being the only ones I ever saw in any author) but are entirely different; the extremities of all the wings being tipped with black, and the bodies consisting of many more articulations than this; the eyes also are not so large and globular, and the feet are shorter."—*Drury.*

XYLOCOPA LATIPES.

Plate XLVIII. fig. 2.

ORDER: Hymenoptera. SECTION: Mellifera. FAMILY: Apidæ.

GENUS. XYLOCOPA, *Fabr.* Apis, *Drury, Linn.*

APIS LATIPES. Hirsuta atra, tarsis anticis explanatis flavis, intus ciliatis. (Magn. Bomb. terrestr. major.)

SYN. Apis latipes, *Drury, App. vol.* 2. *Fabr. Ent. Syst.* 2. 314. 1. *Syst. Piez.* 337. 1.

HABITAT: The Island of Johanna, near Madagascar *(Drury).* China *(Fabr.).*

Eyes large, having the ocelli placed between them, just above the antennæ. Antennæ jointed in the middle, i. e. at the end of the long basal joint, which is broad and flat at the tip. Tongue horny and thick at top, ending in a sharp point. Thorax shining and dark blue, covered on the front with black hairs. Abdomen dark blue, the sides being hairy. Wings dark blue and opake. Breast dark blue and hairy. Fore legs longer than the others, and very hairy, the femora and tibiæ being black; the first articulation of the tarsi being composed of a thin horn-like substance of a light yellow colour, concave and hollow within, but flat on the top or upper part; from the hinder side or edge whereof proceed many long hairs of the same colour.

According to Mr. Smeathman these bees are very injurious to wooden houses, the posts of which they bore and perforate in various directions, so as to weaken them very much. The holes they make are half an inch in diameter. Drury hazards the conjecture, that the curiously dilated anterior tarsi, and the long hairs with which it is furnished, appear to be useful to the creature for containing the substance of which these insects compose their nests. This, however, is but mere conjecture; since it is the males only which possess this curious construction; and this sex takes no share in the construction or provisioning of the nest in any species of bees with whose economy we are hitherto acquainted. There are certainly several distinct species confounded together under the common name of Xylocopa latipes.

SYNAGRIS CORNUTA ♂.

Plate XLVIII. fig. 3.

ORDER: Hymenoptera. SECTION: Diploptera. FAMILY: Vespidæ, *Leach.*

GENUS. SYNAGRIS, *Latr. Fabr.* Vespa, *Linn.* Apis, *Drury.*

SYNAGRIS CORNUTA. Ferruginea, abdomine alisque nigris, mandibulis porrectis capite longioribus. ♂. (Long. Corp. cum mand. 1 unc. 4½ lin.)

SYN. Vespa cornuta, *Linn. Syst. Nat.* 1. 2. 951. 20. *Fabr. Syst. Piez.* 252. 1. *Latr. Hist. Nat.* 3. 360. (Synagris c.) *Griffith Animal Kingdom, Insects, pl.* 106. & 107. *fig.* 1. *Drury, App. vol.* 2. (Apis c.)

HABITAT: Africa *(Fabr.).* Anamaboe (*Drury*).

Front of the head dark orange, the hinder part brown. Antennæ dark orange brown, and about the length of the thorax; the basal joint elongated. Ocelli distinct. From the front of the head proceed two slender horns, about three-eighths of an inch in length, of a solid bony substance, bending at the extremities toward each other, which the insect can open and close together horizontally, and which are the mandibles greatly developed. The base of these horns extends downwards, and forms a kind of

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hollow beak, terminating in a point which encloses the tongue, and serves as a guard or fence to secure it from external injuries. Thorax and legs orange brown. Abdomen probably of a dark mazarine blue [?] when the insect was living, but is now of a dead black. Wings brown, opake, and shining.

PHASMA (PLATYCRANA) JAMAICENSIS.

Plate XLIX. fig. 1.

ORDER: Orthoptera. SECTION: Cursoria. FAMILY: Phasmidæ.

GENUS. PHASMA, *Fabr.* Mantis, *Drury.* SUBGENUS: Platycrana, *Gray.*

PHASMA (PLATYCRANA) JAMAICENSIS. Linearis viridis, alis pallidè roseis costâ tenui viridi. (Long. Corp. 3 unc. 6 lin.)

SYN. Mantis Jamaicensis, *Drury, App. vol.* 2. *Fabr. Ent. Syst.* 2. 15. 11. (Mantis J.) *Gray Syn. Phasm. p.* 38. (Platycrana J.)

HABITAT: Jamaica.

Head green. Eyes small and black. Antennæ filiform and long. Thorax and abdomen green, long, and slender. Tegmina very small, and striped with green, the anterior edges being yellow. Wings very thin and membraneous, being of a pale blush or pink colour; but along the anterior edges are thick and green. Legs green; but at the articulations are of a yellowish hue. Femora furnished with spines; those on the fore ones being smallest. Tarsi of the ordinary form.

MANTIS CINGULATA.

Plate XLIX. fig. 2.

ORDER: Orthoptera. SECTION: Cursoria FAMILY: Mantidæ.

GENUS. MANTIS, *Linn. &c.*

MANTIS CINGULATA. Luteo-fusca, elytris subolivaceis maculis duabus obliquis discoidalibus, alis fuscis basi et versus apicem pallidioribus, abdomine pallido nigro annulato. (Long. Corp. 2 unc. 9 lin.)

SYN. Mantis Cingulata, *Drury, App. vol.* 2.
Mantis Domingensis, *Pal. Beauv. Ins. d'Afr. et d'Amer. Orthopt. pl.* 12. *f.* 2.?

HABITAT: Jamaica.

Head brown yellow. Eyes rounded, and distant. Antennæ (in Drury's specimen) wanting. Thorax long and slender, flat at bottom and rounded at top. Tegmina pale greenish colour, with a nerve running down the middle like the leaf of a tree, extending, when closed, the length of the abdomen, being margined along the edges. Wings very thin and brown; but along the anterior edges thick and yellow. Abdomen yellowish, with black rings, and broad at the middle, but narrow where it joins the thorax. Fore legs yellow brown, with a black spot at the tips of the femora on the inner side. Trochanters flat and thin. Femora furnished with two rows of spines, and a groove between them to receive the tibiæ, which are furnished at the extremity with a strong spine bending inwardly, and likewise on each side with a row of small and shorter spines, regularly placed and very even. From this articulation proceed the slender tarsi, the first joint being the longest. The middle legs have a small flap, or membrane, placed near the tips of the tibiæ, on the first articulation of the bearers; with two small spines at the joints of the same articulations, both of these and the hinder legs.

PHASMA (DIAPHERODES) GIGAS.

Plate L.

ORDER: Orthoptera. SECTION: Cursoria. FAMILY: Phasmidæ.

GENUS: PHASMA, *Fabr.* Mantis, *Drury.* SUBGENUS: Diapherodes, *Gray.* Cyphocrana, *Serville.*

PHASMA (DIAPHERODES) GIGAS. Aptera, capite thoraceque spinosis, hoc lateribus serratis, elytris brevissimis, femoribus subtus angulatis. (Long. Corp. 7 unc. 9 lin.)

SYN. Mantis gigas, *Drury, App. vol.* 2. (1773.) (nec *Fabr. Ent. Syst. Suppl. No.* 6. *Oliv. Encyl. No.* 2. *Serv. Rev. Orthopt. p.* 33.) *Gray Syn. Phasm. p.* 33. (Diapherodes G.)
Mantis angulata, *Fabr. Ent. Syst.* 2. 13. (1793.)

HABITAT: St. Vincent.

General colour brown, but probably green when alive, becoming brown by the spirits in which it was preserved. Antennæ about three inches long, and composed of a great number of articulations (not less than fifty) being thickest at their roots, from whence they diminish a little to their extremities. Head oblong, with two short thick spines on the top, near the front. Eyes small, round, black, and distant. Four palpi, each 4-jointed; that next the mouth being the shortest. Mouth appearing not to be furnished with strong teeth or jaws, but seeming rather formed for macerating tender plants. Neck and thorax having a great many short thick spines on them; particularly the latter, which has a ridge on each side, full of spines like the teeth of a saw, extending to the abdomen. "It is evident this species is furnished with wings when arrived to its complete state, by the rudiments observable in this; which, though they are exceeding small, are a sufficient proof it is not wingless." Abdomen composed of seven articulations; the last being divided into three smaller ones, from whence springs from the under part an instrument that extends about half an inch beyond the tail, being shaped like a three-edged sword; each side being hollowed and grooved like that weapon. When first received, the abdomen was considerably broader than it is now, being then nearly the breadth of a man's thumb; but now is contracted one-fourth, and in proportion every other part is less, except the head. The hind legs are longer than the rest; but are not formed, like the locust tribe, for leaping. The under part of the thighs are furnished with short thick spines; those on the hinder ones being the strongest, and most conspicuous. The tips of the femora are furnished with two thick strong spines, which are placed on each side the joint. The tibiæ are short and thick. The tarsi consist of five articulations besides the claws; the bottom of each having a valve or sucker to it; those placed between the hooks being considerably larger than the others, by which the creature is enabled to climb up any thing perpendicularly that has a smooth surface.

END OF VOL. II.

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